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THE EVOLUTION OF CLINICAL MEDICINE AS ILLUSTRATED BY THE HISTORY OF EPILEPSY

BY

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To all who have been for some years engaged in the practice of clinical medicine it is obvious that important developments in the diagnosis of many diseases have taken place during the period of their professional life, but many are apt to forget how recent is the acquisition of much knowledge. Hughlings Jackson, to whom I was house-physician, was accustomed to say he had been a neurologist many years before the knee-jerk was first described, and I had almost passed out of studentship when Babinski drew attention to that type of pathological plantar reflex which has become such a valuable sign in the diagnosis of nervous disorders. Advances in treatment are perhaps more striking, but as rational therapeutics depend on recognition of the nature of the disease, diagnosis is evidently the first essential step in progress.

In many instances recognition of the nature and origin of a morbid condition has developed suddenly as a result of careful clinical observation, as the distinction of typhus from enteric fever; by the demonstration of constant and characteristic anatomical changes associated with it; and, more critically, by the discovery of a specific causal factor, as the infecting organism of an infectious illness. Sometimes, however, it has been due to introduction of new methods of investigation, as the use of the electrocardiograph in that branch of medicine in which the founder of this lecture is a recognized authority.

More frequently the differentiation of separate diseases as seen through the centuries has been a long and slow process which has been retarded by failure to follow the straight path in the maze of clinical experience, by misinterpretation of observations, and particularly by failure to observe accurately and correlate clinical symptoms with morbid anatomy. And as most symptoms are disturbances of function, diagnosis has had in many cases to follow in the wake of physiology.

But the history of medicine reveals another and even more serious obstacle to progress which must be impressed on the student, or rather postgraduate, of to-day: it is too faithful submission to authority and failure to reason independently from facts observed. This will be evident in the subject I have selected to illustrate the evolution of clinical medicine. Many diseases might be chosen for this purpose, and the story of some might be more instructive, but, owing to the dramatic manifestations of epilepsy, its occurrence and views on its nature and pathology have been recorded since the dawn of history. Perhaps I have also been prompted to talk to you on the history of epilepsy by a subconscious memory of a statement by Oliver Wendell Holmes: "If I wished to show a student the difficulties of getting at truth from clinical experience I would give him the history of epilepsy to read."

An accurate definition of terms should be the first step in any discussion, and it is particularly necessary here, as history has recently repeated itself in a tendency to extend the connotation of the term "epilepsy": many, in fact, now speak of several types of convulsions and other episodic phenomena as belonging to "the epilepsies." It will, however, suffice to state that here it is proposed to deal only with so-called idiopathic epilepsy—that is, a chronic disease without gross structural changes, characterized by periodic attacks of loss of consciousness with or without convulsions or other symptoms.

It is evident that in dealing with the early history of any morbid condition one must distinguish between the views of the layman and those of the physician. This is often difficult, as they may include in it different clinical entities—in fact, speak of different conditions. It is particularly so in the history of epilepsy, with which, till early in the nineteenth century, hysteria, vertigo, trances, the religious ecstatic states so common in the Middle Ages, and other conditions were often confused by both the profession and the people. But, on the whole, a fairly clear picture of genuine epilepsy is presented in early literature.

Views of the Greeks

Scientific medicine—that is, direct clinical observation and application of reason to the facts observed—came to birth in Greece about the end of the fifth century B.C. Some of the medical knowledge then possessed by the Greeks may have been derived from earlier Arabian and Egyptian physicians, but the empirical practice of the East was from this period largely replaced by attempts at a materialistic interpretation of the universe and of vital phenomena.

The earliest contribution to epilepsy that we possess is a treatise by Hippocrates or by a member of his school, *On the Sacred Disease*, written about the middle of the fifth century B.C. It contains an attack on the superstitions of the people, and probably of physicians too, who had regarded it as a disease of divine origin. It is therefore evident that epilepsy, or conditions confused with it, was recognized by previous generations. In the Hippocratic monograph it is insisted that all illnesses have natural or material causes and that epilepsy is no more sacred or divine than other diseases. It is not due to the wrath of the Gods, demoniac possession, or other extraneous influences. Divine and supernatural influences were denied, and anthropomorphic and religious theories of earlier philosophers and priests were replaced by a pathology that was the first step in scientific knowledge.

The clinical descriptions are excellent, and contain many observations that were overlooked during the next two thousand years. It was recognized that epilepsy rarely starts after the age of 20, that there is often a hereditary tendency, that its manifestations vary, that it sometimes ceases spontaneously, that attacks occur in sleep and particularly on waking, and that when associated with injury of one side of the head convulsions may be limited to the opposite side of the body. It was also observed that in chronic cases the brain may be abnormally moist—a fact well known now, as cerebrospinal fluid accumulates on its surface and between its convolutions when its tissue atrophies. Further, epilepsy was attributed to irritation of the brain by acid or sour substances—an interesting fact, as it is the first indication of localization in it of pathological processes.

* The first Price Lecture, delivered in the Queen's University, Belfast, on May 9, 1946.

As the Hippocratic school regarded epilepsy as a cerebral disease it is necessary to recall the views of the Greeks on the functions of the brain. Some years earlier Alcmaeon taught that it is the organ of mind, and that through it sense impressions reach consciousness; but this was not generally accepted by later philosophers up to the time of Hippocrates. For many subsequent years the nature and the seat of consciousness and mind occupied a dominant place in Greek philosophic discussions, largely to the exclusion of somatic functions. Intelligence, the passions, and sensibility were by various authors referred to the heart, liver, lungs, and other visceral organs. According to Hippocrates, however, the brain is the organ of the mind; it is by it we think and understand, see and hear. All intellectual and moral activities depend on it; it is the interpreter of intelligence, but intelligence is carried to it by air that circulates through the veins. If the veins are blocked by cold phlegm the patient becomes unconscious and an epileptic attack occurs.

The influence of the teaching of Hippocrates is obvious in Plato's hypothesis that epilepsy is due to a mixture of white phlegm and black bile which obstructs the circulation of air to the head. But Plato's dogma that it is necessary to avoid the confusion caused by evidence afforded by the senses and to determine truth by argument alone was largely responsible for failure in advance in the natural sciences during the following sixteen centuries. The influence of his teaching persisted, though in his later writings Aristotle emphasized the necessity for observation and the importance of determining concrete facts.

Aristotle attributed disease to morbid changes in the body, and refuted belief in magic and intervention of divine and demoniac agencies. Though there is no evidence that he studied anatomy or performed dissections, he repeatedly marshalled evidence to prove that the heart was the "sensorium commune"—the organ of sensation and intelligence—and that the only function of the brain was to cool and purify the blood, or rather the air or vapour that is conducted to it by the veins. He attributed epileptic seizures to these vapours being too condensed by the cold brain and therefore impeding the action of the heart when they return to it. These humoral theories favoured by Plato and Aristotle had for several centuries great influence on views on the pathogenesis of epilepsy.

Although Plato, Aristotle, and other Greek philosophers sought to explain illness of the body and often afflictions of the mind by somatic or material causes, not only was the application of scientific methods to the study of man neglected by their successors, but, as the fate of Socrates shows, denial of divine intervention in natural happenings was, as it also became in later years, a dangerous heresy. Even early in the eighteenth century Hippocrates was accused of atheism.

The Next Milestone

The work of Galen in the second century A.D. is the next milestone in the history of epilepsy. Galen was an anatomist as well as a first-rate clinical observer; he insisted that the brain is the organ of mind, of sensation, and of movement—not merely an inert mass or a kind of cold wet sponge which cooled the humours, as some of his predecessors believed. He published excellent descriptions of the clinical features of epilepsy, and insisted that it is always due to disorder of the brain, though in certain types the brain may be affected sympathetically by disease of other organs, as the stomach.

He was probably the first to describe local epilepsy, and observed that its clonic spasms may be sometimes arrested by tying a band round the limb in which they start. He observed, too, that when unilateral convulsions reach the head consciousness is generally lost. He assumed, however, that convulsions limited to one limb were due to an affection of peripheral nerves, those involving the whole body except the face to disturbance in the spinal cord, while those in which the face was also affected originated in the brain.

His view on the exciting cause of generalized convulsions was that the humour or principle on which sensation and motion depend, or by which the brain acts on, or is acted on by, the rest of the body, is elaborated in the anterior ventricles of the brain, passes through the third and fourth ventricles, and is thence distributed to the periphery. When this humour becomes too thick or viscid its circulation is impeded, and the brain, which in its reaction he compared to the strings of a harp, is agitated and thus causes convulsions. On the other hand, accumulation of viscid humour in the substance of the brain produces changes in intelligence and temperament such as are common in epilepsy. It is interesting that he also attributed convulsions to excessive humidity, or, as we would say to-day, to hydration—a factor which has been again recognized only within recent years.

Aretaeus of Cappadocia, who practised medicine a little later than Galen, also furnished excellent descriptions of epileptic phenomena, particularly of the initial stages or aurae of seizures. He also recorded post-epileptic paresis and anaesthesia, the mental disorders that occasionally follow attacks, and the dementia that frequently develops in chronic cases. He had apparently no doubt that seizures originate in the brain owing to disturbances in the circulation of animal spirits. As later surgeons, he found that merely opening the skull, or cauterizing the underlying brain, might arrest seizures for a time.

After the philosophic age of Greek culture search into the nature of things declined except in Rome, but as here learning and research were directed to more practical or material ends there is little new in the records which have come down to us on the nature of epilepsy. That it was common among the Latins is evident. They gave it the name "morbus comitialis," as their meetings in comitia were suspended when one of those present had a seizure, since this was attributed to demoniac possession or to a malign influence of a god, who by this means indicated his displeasure at the proceedings. In the first century B.C., however, Lucretius, who in his often-quoted verse gave an excellent and detailed description of an attack, attributed it to physical or rather humoral causes. At the onset the patient, "Struck as with lightning by some keen disease, drops sudden," and, as the attack passes off, "The morbid cause declines, and the fermenting humours from the heart flow back."

The Old Superstitions

But the old superstitions still held sway. They were universally accepted by the people, and probably by the educated too, for, as Francis Bacon wrote, "In all superstitions wise men follow fools." It was so among the Hebrews, who were at that time under Roman rule; for both St. Matthew and St. Mark record the case of an epileptic boy, one of whose seizures occurred in the presence of Jesus, who according to St. Mark said, "Cast out the devil," or in St. Matthew's words, "the foul spirit." The characteristic abrupt cessation of the convulsions and the rapid recovery after a brief period of coma could obviously be explained by the hypothesis that the victim had been suddenly freed from a malign possession.

It is consequently not surprising that, later, demonology became a dogma of the Church and doubt a heresy. Its influence extended through the Dark Ages of the next 1,400 years. Independent thought and investigation were largely replaced by tradition and often suppressed. Belief in witchcraft and possession by demons was almost universal; the Church frowned on views discordant with precedent, and Medicine relied largely on authority, which, as Sir Thomas Browne wrote, has always been a "powerful enemy unto knowledge." In the thirteenth century St. Thomas Aquinas, and two centuries later Martin Luther, admitted the possibility of possession by evil spirits, and even in the sixteenth century epilepsy was spoken of as a "demon disease." The professional reputation of Chaucer's Doctour of Phisik was based on his acquaintance with ancient Greek, Arabian, and Roman authorities and on his knowledge of the humoral pathology of Empedocles.

> "He knew the cause of everich maladye,
> Where it of hoot or cold, or moyste or dry,
> And where they engendred and what humour."

Throughout the Middle Ages there were, so far as we know, only variations of ancient theories and little or no original research or speculation into the nature of epilepsy. Seizures were often confused with outbursts of hysteria and other conditions, while most still believed in demoniac possession; others held that the moon and the planets could influence the occurrence of fits. Relief was consequently sought in prayer and fasting, and in magic charms and rituals.

In the first half of the sixteenth century Jean Fernel, whose biological philosophy Sir Charles Sherrington has taken as the

text for his Gifford Lectures, *Man on his Nature*, recognized various types of epilepsy, emphasized its common hereditary tendency, attributed seizures to poisons or vapours irritating the brain, and produced pathological evidence which he thought confirmed this view. But he did not definitely exclude possession, for he recorded the case of a man who was regarded as an epileptic, but from the record was beyond reasonable doubt subject to hysterical seizures, in whom "a certain devil was found to be the cause of this ill." He protested against the prevalent use of charms as a means of warding off attacks, as carrying in writing the names of the three kings who came to worship the infant Christ.

A New Era in Neurology

A new era in neurology was introduced by Sir Thomas Willis (1621–75), whom Soury, the historian of neurology, compared in the vividness of his imagination, brilliancy of style, and profundity of thought to Shakespeare. Though known chiefly as an anatomist, Willis was also a pathologist who correlated symptoms of disease with structural lesions, and a physiologist who attempted to elucidate function by relating the functional capacity of the animal to the development of different portions of the brain. He recognized that the forebrain is not only the organ of mind and that by which sensory messages reach consciousness, but also the origin of nervous impulses, or as he, following his predecessors, wrote, of "animal spirits," which when distributed to lower levels of the nervous system excite movement. He compared these nervous discharges to explosions of gunpowder, and attributed epilepsy to excessive and irregular explosions which in predisposed persons spread through the nervous system. He also taught that epileptogenous discharges originate in grey matter—not in the meninges, white matter, or ventricles of the brain, as was previously believed.

But even Willis did not escape the weight of tradition, for he wrote: "As often as the Devil is permitted to affect miserable mortals he is not able to draw more cruel arrows from any other quiver, or to show miracles by any better witch than by assaults of this monstrous disease." He also described how an attack could be recognized as the work of witches.

A generation later Boerhaave, the celebrated Dutch physician, attempted to explain the symptoms of epilepsy and of other diseases in terms of the physiology of his time. He recognized that many causes may precipitate an attack in one predisposed to epilepsy, and emphasized the importance of injury of the head and neck at birth as a factor. In his view the essential cause of seizures was excessive irritation or abnormal irritability of the brain. At first he believed that the epileptic discharge starts in the white matter of the forebrain, but later decided it may originate in the medulla oblongata. Boerhaave also distinguished hysterical and simulated convulsions from epilepsy, and described an interesting outbreak of mass hysteria in an orphanage which he suppressed by applying, or threatening to apply, a red-hot iron to each of the patients. But even Boerhaave was not wholly free from the influence of tradition, for he appeared doubtful if it was safe to exclude the possibility of supernatural causes in all cases.

During the next century little was added to the knowledge of epilepsy—in fact, a series of experiments on animals diverted attention from the conclusions to which Willis had come. Haller and others found the cortex of animals inexcitable, but evoked convulsions from the brainstem, particularly from the medulla oblongata, which suggested that this was probably the seat of origin of epilepsy. Even in 1859 Schroeder van der Kalk stated that fits are due to abnormal excitability of the medulla—a view shared later by Kussmaul and Russell Reynolds. Nothnagel also postulated the existence of a convulsive centre in the pons, and even Hughlings Jackson believed, for a time at least, that some convulsions depend on discharging centres in the pons or medulla.

It is not surprising that even when it was recognized that epilepsy was a cerebral disorder most of the hypotheses on the immediately exciting cause of an attack were indefinite and vague. The Hippocratic school, as we have seen, believed they were due to excessive and viscid humour acting on the brain; others explained them by obstruction to the circulation of a vital humour in the heart or brain; later, chemical substances and peripheral irritation were evoked as probable factors. Henle attributed seizures to disturbances in the cerebral circulation, Kussmaul and others to spasm of the cerebral vessels—a view that later was repeatedly revived. It will be observed that all these theories sought to explain seizures by extraneural factors; Willis alone placed the essential abnormality in the nervous elements of the cortex of the forebrain.

Treatment and measures to prevent the occurrence of seizures which were till this time commonly practised both by the people and by doctors illustrate the prevalent ignorance and uncertainty on the nature of the disease. Hippocrates recommended strict dieting, fasting, purgation, counter-irritation of the head, and sometimes blood-letting. When it was believed they were due to the powers of darkness, prayers, incantations, and charms were the only obvious means of treatment. Charms of great variety were used in many lands: silver rings and rings made from coffin nails were popular in England; carrying three hairs of a milk-white greyhound was recommended in Ireland. But most reliance was placed on religious and mystical rites; even in the middle of the eighteenth century a protest was made at depriving the Church of its privilege of curing fits by holy means. From earliest times various drugs were also employed, but none proved so efficient as to be generally used till Sir Charles Locock introduced bromides in 1857.

Modern Views on Epilepsy

This short review of the history of epilepsy brings us to modern times, when the discovery that the surface of the brain is excitable, and that excessive stimulation of the cortex is liable to produce local or general convulsions, provided what is now generally accepted as conclusive evidence that it is here seizures originate. More refined experimental methods and, during the past ten years, the recording of the electrical activity of the brain have confirmed this conclusion.

But clinical observation and the scientific application of analysis and reasoning to facts observed had not yet exhausted progress. This was above all owing to Hughlings Jackson, who in a series of papers from 1861 subjected all features of epilepsy to a keen and masterly analysis. Few diseases have been subjected to such an intensive and critical study, few conclusions have stood so well the test of time as those drawn from it. In a long series of papers Jackson dealt with all its symptoms, discussed their nature, and related them to disorders of specific functions of the brain. Jackson's name is most commonly associated with local convulsions, which, being the simplest subject for study, naturally attracted his attention; but this is only a minor contribution to his fame. Particularly significant now is his statement that a convulsion is due to "a sudden and excessive discharge of many nervous arrangements representing movements, at once or nearly together, because the cells of these arrangements have by some pathological process become highly unstable." This was indeed a prophetic forecast of the results of later methods of investigation.

Another eminent English physician, Sir William Gowers, whose clinical studies and vivid descriptions of the phenomena of epilepsy are unsurpassed, came to a somewhat similar conclusion. According to him an epileptic outburst is due to an unstable equilibrium of the brain that depends on the molecular constitution of nervous elements, which are therefore predisposed to sudden releases of energy apart from an adequate stimulus.

The important part in the teaching of Jackson and Gowers is that the primary and essential disorder lies in the nervous tissue of the cortex, although various other factors may increase their liability to discharge. Later studies have added little to our knowledge. Jackson, Gowers, and others exhausted the limits of clinical observation and analysis, and laboratory investigations have served only to demonstrate factors that predispose to seizures in those subject to them.

Electro-encephalography

But suddenly and unexpectedly, as often happens in other branches of knowledge too, a new means of investigation was discovered which brings us much further in our search into the mystery of epilepsy. In 1929 Hans Berger found that the electrical activity of the brain can be detected through the unopened skull and scalp and recorded when adequately amplified. This activity, which is now generally known as "brain waves,"

appears as variations in the action potentials of large groups of neurons which beat together in synchrony, but it is so feeble that to be made visible in tracings it must be magnified one to two million times. These waves may be modified by several factors, as the arrival of afferent impulses, the state of consciousness, and emotion. Normal waves are more or less regular, but their rate and amplitude vary in different regions of the brain, to some extent in different individuals, and even in the same individual under different conditions.

A few years after Berger's discovery it was found that during epileptic seizures the rhythm and voltage of the waves are grossly modified owing to large numbers of neurons discharging synchronously or simultaneously. Owing to this grouping of discharges they are larger and slower; it is as though the ripples on a calm sea were suddenly by a gale transformed into much larger waves more widely spaced or separated from each other. An epileptic discharge has, indeed, been figuratively described as a "brain storm." It has also been found that different patterns of irregularity are associated with different types of seizures, and that deviations from the normal may occur in an epileptic in interparoxysmal periods.

By many the electro-encephalograph has come to be regarded as a magic wand that can clear away any doubts there may be in the diagnosis of epilepsy. This attitude is certainly unjustified, and may unfortunately cause not only an error but also the personal and economic tragedy that wrongly stamping a person as an epileptic may lead to. Let us see what is the position electro-encephalography occupies to-day. In the first place it is no uncommon experience for the physician to find that separate reports on tracings of the brain waves of any individual are widely divergent or even contradictory: one recorder may report the tracings he has obtained as normal, another that they indicate beyond doubt epilepsy, while a third may interpret his tracings as doubtful but sufficient to suggest the possibility of epilepsy and thus excite the fears, anxiety, and uncertainty that are so disturbing to the patient and to his relatives. For here, as in other branches of medicine, the significance of tests that are new, mysterious, or classed as "scientific" outweigh to the layman the value of expert clinical experience.

The changes in the electro-encephalographic tracings during and immediately preceding a seizure are characteristic and can leave no doubt of its nature; but often these can be demonstrable only when recorded during an attack—then they merely supplement direct observation. Occasionally, however, they appear between seizures and can then be interpreted as due to larvate attacks that present no outward or visible sign. Such deviations from the normal are undoubtedly valuable, especially when an attack has been unobserved and when information conveyed by the patient or his friends may leave doubt of their nature.

But electro-encephalographic abnormalities of the type associated with epilepsy occur even in normal persons who never have had, and probably never will have, a seizure. Lennox, whose experience is unrivalled, estimates that 10% of the population, and an even larger proportion of relatives of epileptics, give such records, and he and others have seen undoubted epileptics in whom abnormal tracings have never been obtained even on repeated examinations.

Recently attention has been directed to less characteristic or non-specific abnormalities, which are more common in tracings from epileptics than from normal persons, but they are not pathognomonic, and indicate at the most only an epileptic tendency. Their value in diagnosis is also reduced by the fact that they occur in other conditions, particularly in the psychoses, in psychoneuroses, and after head injuries.

Changes in the rhythm of the brain waves as revealed by the electro-encephalograph have not, therefore, the absolute value in diagnosis as has the demonstration of the causal organism of an infectious illness, the Widal test in enteric fever, the estimation of blood sugar in diabetes mellitus, or even electrocardiographic tracings in revealing lesions of the conducting system of the heart. To quote Denis Williams, who has had extensive experience both in the use of electro-encephalography and in clinical neurology: "With expert clinical case-taking the electro-encephalograph is needed as a diagnostic aid in only a minority of patients suspected of having epilepsy"; and "There is an unfortunate tendency among some clinicians to substitute a laboratory report for a careful history and examination." Jasper, who has worked extensively on the subject, also writes: "The electro-encephalogram cannot be depended upon to give a certain diagnosis of clinical epilepsy without the aid of other data."

Future experience, research, and the adoption of new methods may add to the value of recording the electrical activity of the brain in epilepsy, but to-day we can only regard it as ancillary or supplementary to clinical investigation and experience. It may, however, produce evidence of what Lennox has called "dysrhythmia" of the cortex—a state that can be regarded as the essential basis of epilepsy, though the patient is not subject to fits or other epileptic symptoms. It also frequently serves to identify the site of pathological changes in the forebrain, whether associated with epileptic phenomena or not, and it has thrown light on the nature of the epileptic discharge. Electro-encephalography has done little more than confirm the hypothesis of the cause of epileptic convulsions formulated as a result of his clinical studies by Hughlings Jackson more than 70 years ago, but it has made possible the visible recording of these excessive discharges.

Conclusion

Here our short sketch of the long history of epilepsy must end. To-morrow may throw new light on the abnormalities of function that constitute liability to seizures and may perhaps bring new therapeutic measures for controlling this liability; but we can now inquire what light this history throws on the evolution of clinical knowledge, for, unless it conveys to us lessons from the past for the use of the present and the future, no matter how interesting history may be it remains barren.

It is obvious that the first step must be differentiation of each disease by clinical methods which mark out the features that distinguish it and make it possible to define it as a clinical entity. The next step is determination of the organ disorder of which is responsible for the appearance of these clinical symptoms. Then comes recognition of the manner in which the functions of this organ are disordered, whether they are associated or not with structural disease—in other words, the interpretation of symptoms in terms of physiology. But in many pathological conditions clinical investigation alone cannot succeed in unravelling all the problems of disease; it must call on the assistance of laboratory and other ancillary methods that may throw light on the nature of the disorder and on the aetiological factors responsible for it.

Finally, the history of epilepsy emphasizes the importance of adequate clinical study of each disease, no matter how valuable laboratory methods may be, in order to make possible the synthesis and integration of information obtained from all sources and its relation to the patient as a whole; for no patient must ever be looked upon as a conglomerate of many more or less independent parts, but as a living adaptable individual.

The history of epilepsy is particularly valuable for the student—and most of us remain students, though perhaps less objective and less receptive to new ideas as age advances—as it shows that one of the most potent obstacles to the advance of knowledge is reliance on authority and subordination to it of accurate observation and careful analysis in terms of function of the facts observed.

The Canadian Tuberculosis Association in its *Bulletin* for March-April, 1946, says that two of the great stumbling-blocks to effective control of tuberculosis have been lack of sanatorium beds and unsatisfactory arrangements to defray the cost of treatment. Steps have been taken during the past few years towards solving both problems. If present plans go through 3,000 additional treatment beds are likely to be available this year. Four provinces have already instituted free treatment for all their tuberculous sick. These are Saskatchewan, Alberta, Manitoba, and New Brunswick. Nova Scotia and Quebec have announced their intention to make similar arrangements at an early date. Meanwhile the educational programme has been intensified. Surveys have stimulated public interest, and these have provided valuable object-lessons in how much unsuspected tuberculosis there is likely to be in the general population. Another encouraging feature is the growing public interest in rehabilitation. During 1944 Canada's death rate from tuberculosis fell to the lowest point in history, namely, 47.7 per 100,000 of the population. Preliminary reports indicate a further reduction last year.

TYPHUS: EXPERIENCES IN THE CENTRAL MEDITERRANEAN FORCE

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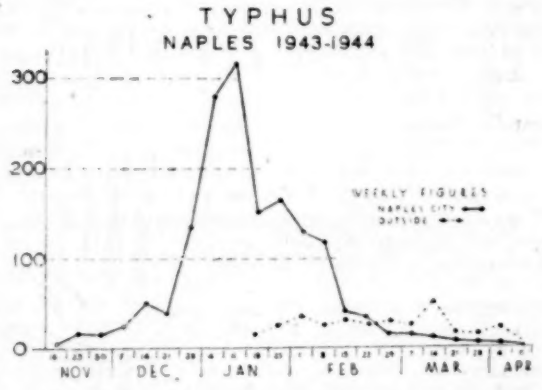
PART II

TYPHUS IN ITALY AND THE BALKANS

No information could be obtained about the presence of typhus in Italy prior to the Allied occupation. It was known that there had been outbreaks in the Balkans and on the Russian front (Don–Donetz regions). The fact that Italian soldiers returning to Italy from these fronts, as well as from Tunisia, might have brought the disease with them was appreciated. Subsequent events proved this supposition to be true. It was not, however, until some little time after the occupation of Naples that any accurate details were unearthed. Naples was occupied by the Fifth Army in October, 1943, and between November, 1943, and March, 1944, a sharp outbreak of typhus occurred in the city and the surrounding districts. Much has already been written about this epidemic in both the lay and the medical press. The main facts, with special reference to the British Army control measures, are given here. They are condensed from a report submitted by me to the War Office in March, 1944.

The Naples Outbreak

During the early days of the Allied occupation of Naples the general disruption of normal civil affairs made it almost impossible to obtain any accurate epidemiological data. The medical services were completely disorganized; there was little general practice and the public health service was barely functioning. As a result no accurate picture could be obtained as to the incidence of infectious disease. The city had suffered very severe damage. The gas, electricity, water, and sewage systems were out of action, and between 20,000 and 30,000 people lived more or less permanently in air-raid shelters. The people were apathetic and depressed. Lousiness was prevalent, especially in the hospitals and prisons. It was clear that these factors, operating in a malnourished unwashed populace of nearly a million, were ideal for the occurrence and rapid dissemination of infectious diseases. The main risk appeared to be that of an epidemic of the typhoid group. By good fortune this did not materialize in Naples, although severe epidemics arose in other towns.



Every effort was made to obtain notification figures, a variety of sources being explored. In November there were rumours that typhus cases were appearing in the city. The word *tifo* is used rather loosely for both typhus and typhoid; a searching investigation was therefore demanded. On Nov. 24 the Regional Public Health Officer, A.M.G., who had been asked for further details, reported that the cases were true typhus. A conference was called by us on the following day, at which British and American hygiene officers and civilian public health doctors took part. At this meeting it was said initially that these were the first cases in Naples since 1938. This appeared to be unlikely, and later the following facts were elicited. It is hard to explain why this important information was at first withheld:

In July there were 12 cases among Serbian prisoners housed in Naples. Between that time and Nov. 20, cases occurred, chiefly among shelter inhabitants and in the large prisoner-of-war hospital. Earlier in the year a small outbreak occurred at Aversa, six miles from Naples. It had been the practice to quarantine soldiers returning from the Russian front at Trieste. A few military cases infected in Tunisia had appeared in different parts of Italy. Few details as to the action taken to prevent the disease spreading could be given us.

It was not until many weeks later that a full account of previous cases was obtained. This was contained in correspondence between the Naples civil authority and the Minister of the Interior, Rome, and the German Military Command. It may be summarized:

In March, a case in a town 15 miles from Naples; in April, 3 cases in soldiers returning from Russia; early in May, 6 cases outside Naples, including 4 children; in July, a civilian who had used a public bath-house in Naples frequented by soldiers returned home infested, contracted typhus, and died. The porter at the baths was next affected. New foci appeared in August in Naples prisons. Cases then occurred in a porter at the jail, a shelter warden, and a policeman. Six inmates of one prison died of typhus. Many "contact" prisoners escaped and could not be traced. The disease appeared in another town outside Naples, and there a quarantine was imposed. It was stated that the epidemic had been mild but that disinfestation of contacts and cleansing of the jail were carried out; and, finally, "measures were taken in the city to get rid of body lice, but this was too difficult to control owing to the congestion of people living in the shelters." Between July and November there were 60 cases in the Naples area; there was also an outbreak at Forli, in Northern Italy. Later information from another source stated that 70 cases occurred in various parts of Italy in troops from Russia.

Initial Action Taken.—Two responsible Italian physicians were appointed to carry out an inquiry and furnish daily reports. A committee was established consisting of representatives of the medical services of the Allied Forces, A.M.G., and Italian civil and military medical officers. Arrangements were made for the immediate putting into operation of the civilian disinfecting centre and for the delousing of hospital inmates. A meeting of Naples practitioners was called and the position explained to them. Daily notification of new cases and the preparation of spot maps were arranged for. The services of hygiene personnel were made available for assistance in disinfestation and in the construction of showers and disinfestors. Malaria Control Units were also brought into the city for the purpose. Insecticide powder was asked for urgently, together with supplies of soap. Schemes were drawn up for controlling movement of the civilian population, and immediate disinfestation and closure of the shelters was demanded. The importance of searching for and notifying all cases and dealing with contacts was emphasized.

The appropriate military authorities were at once informed of the danger to Allied troops, and formations were instructed to submit schemes to be put into operation in case of local necessity.

Progress of the Epidemic

Up to the end of the third week in December, 1943, the number of cases showed a slight but nevertheless significant increase: Nov. 16–23, 18; Nov. 24–30, 18; Dec. 1–7, 22; Dec. 8–14, 45; Dec. 15–22, 36. But between Dec. 22 and 28 a total of 138 cases were recorded. Drs. Soper and Davis, of the Rockefeller Foundation, arrived in Naples early in December. A scheme for case-searching (past and present cases) and the treatment of contacts with insecticide powder was put into operation about the middle of the month. The American Army insecticide powder containing pyrethrum was used, being applied mechanically by means of dust-guns. Every available contact in the family and outside, together with everyone in the building or block of buildings, was dealt with. A dusting centre was opened in a room in the house to which persons living in the neighbourhood could come. Up to 200 persons per case were dusted in this way. This method of application of insecticide powder (MYL, A.L.63, or D.D.T.) by means of dust-guns has particular advantages over the old-fashioned method of hand-dusting of the underclothing. It can be done without removal of the clothes and large numbers of people can be dealt with quickly and efficiently. The powder is forced up the sleeves so that it reaches the axillae, down the front and back of the neck inside the shirt, and inside the

trousers to the pubic region. The hair is also dusted. Towards the end of the month public dusting stations were open in the city, and with the advent of the Typhus Commission these were quickly increased in number. Centres were also established at the railway stations and hospitals, at ferry embarkation points, and in refugee camps. The Italian staffs of these included doctors, nurses, and Red Cross workers. All were paid. Trained squads worked in the shelters, visiting each one periodically. No compulsion was placed on the populace to submit to this form of disinfestation, but its availability was made known through the medium of doctors, priests, and the Press. It was found that all were eager to be rendered louse-free, partly from their fear of typhus, but more probably because it gave them a freedom from body irritation which they had not known for many months. The efficacy of this mode of disinfestation needs no better testimony than this. The daily number of persons treated rose to 60,000, and by the end of February, 1944, 2,250,000 people had been dealt with. This figure does not include the civilians employed by the British and U.S. Forces. 30,000 civilians in British Army employ were dusted with A.L.63 at fortnightly intervals. This was done by Malaria Control Units.

The U.S. Typhus Commission

This organization, under the direction of Brig.-Gen. Fox, arrived in December, 1943, and began operations early in January, 1944. It comprised sections for case-finding, contact delousing, mass delousing, inoculation, and refugee delousing, together with a "flying squad" for investigating new outbreaks, and a Central Advisory and Control Branch. D.D.T. powder was made available in large quantities and a 10% mixture in talc was used exclusively for civilian dusting. It was not until late in December that it had first been obtained. During this preliminary period only 10% of the total dustings were carried out with D.D.T. All the dusting was done by means of dust-guns. R.A.M.C. officers, 17 in number, loaned from general hospitals, assisted the Typhus Commission.

Administrative Control

A Typhus Control Board was set up by authority of Sir Brian Robertson, the Chief Administrative Officer of the Allied Central Mediterranean Forces, under the chairmanship of Brig. Galloway, the D.D.M.S. The members consisted of Brig.-Gen. Fox, U.S. Typhus Commission; senior administrative medical officers of the British and American Armies, and of the Allied Commission and the Allied Military Government; and myself. At its meetings civilian and military control measures were co-ordinated, and difficulties in such matters as transport, personnel, and equipment sorted out. It fulfilled a most valuable function.

The local committee, inaugurated in November, continued to meet weekly. Allied Navy, Army, and Air Force officers attended, as well as Italian military and civil doctors. The Regional Public Health Officer, Col. Crichton, acted as chairman. These meetings were very successful, and they enabled problems to be solved which could not otherwise have been tackled. (See also *Journal*, June 29, p. 996.)

Frequent meetings of general practitioners were arranged by A.M.G. The doctors and their families and members of the nursing profession were offered immunization. The response to this was disappointing, and inoculation proceeded very slowly—the result of a belief that untoward results often followed its administration. Such an attitude of mind, which had its counterpart in Algeria, is inexplicable.

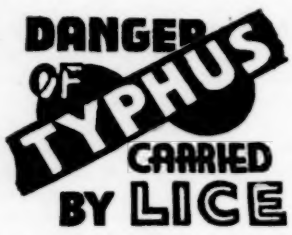
Further Control Measures

Cinemas and public places of amusement were closed. The reopening of schools was agreed to, for children could be dusted there and propaganda fostered.

When railroad travel restarted no civilians were allowed on the platforms at Naples without being dusted. The control of road traffic from the city was supervised, but, although civilians were required to furnish proof of having been dusted before being issued with passes, there was a very considerable leakage. This was fostered by a black market in disinfestation certificates. The problem of refugees from forward areas promised to be a serious one. A few scattered cases occurred in these areas, but contacts were very efficiently dealt with by field hygiene sections and divisional medical officers. Steam disinfestation was used at first, and later insecticide powder (A.L.63 and MYI). Camps were eventually established where all refugees were deloused before dispersal. Large numbers of these refugees passing through Naples were treated with D.D.T. by Typhus Commission teams. Five tons of A.L.63 powder were released from our stocks to A.M.G. for refugee use in the Army areas, and portable disinfestors were lent.

British Army Control Measures

These were based on early propaganda by means of lectures, films, posters, and newspaper articles. The streets of Naples were plastered with signs prepared and erected by the hygiene sections. Routine instructions were issued regarding baths, A.L.63 powder, etc.



Road Sign in Naples (62 Field Hygiene Section)

Naples was the principal Allied port in Italy. At this critical stage of the campaign, with the landing at Anzio imminent, the port had to be kept working at full capacity. It was also an important leave centre for fighting troops, the Allied Navies, and the Mercantile Marine. As a port of disembarkation and a railway terminus, thousands of troops passed through it in transit. To have placed the city entirely out of bounds would have been a serious matter, and this step was deferred as long as possible. Troops were forbidden entry to certain parts of the town and the use of public vehicles, cinemas, and restaurants. As the epidemic increased, this decision had to be reconsidered, for in the narrow streets and alleys with which the city abounded it was impossible to avoid rubbing shoulders with civilians. Prostitution was rife, and rigid policing of the prohibited zones was a difficult matter. So on Jan. 9, 1944, it was recommended that Naples be placed out of bounds to all Allied Forces other than those on essential duty; this was agreed to. All Allied seamen were included in the order, but in spite of the hardship this imposed on them it was safer to confine them to the dock area than to allow them to run the risk of getting infected and carrying the disease to other parts of the world.

The British Army inoculation state, at first low, was gradually raised as Cox's vaccine became available. Brig.-Gen. Fox was instrumental in obtaining supplies from America for our use. The work of hygiene sections in constructing baths and disinfestors has already been referred to, as has the part played by malaria control units who formed the mobile teams. We employed Italian tinsmiths to make dust-guns. These were afterwards manufactured at Army workshops. Power-guns were experimented with, and were used by the mobile teams. Civilians employed by the British Army were dusted every ten days, and a selected number of these were given injections of the vaccine of Durand and Giroud. Many cases occurred in the Italian Navy and Army during the early days, when the degree of infestation in barracks and hospitals was high. They were supplied with dust-guns, A.L.63 powder, and vaccine. Leave of Italian troops to Naples was cancelled, and those departing from the area were dusted and quarantined. Few Italian Service cases of typhus occurred in 1944—in marked contrast to the incidence at the end of 1943.

British Army Cases

One British soldier was infected in Naples. The victim was a deserter. He was apprehended after hiding in the slum quarter, and was heavily infested when caught. Two other cases of typhus occurred, but the place of infection was probably North Africa. So far as is known, there were no cases among the 25,000 to 30,000 civilians employed regularly by the British Army. Many casual workers were attacked.

Hospital Arrangements

The regular infectious disease hospital was not being used as such in November. It was bomb-damaged, and was in military occupation. The alternative accommodation was even less suitable, and after some difficulty the original premises were released and partially repaired. Heating, lighting, kitchen, and

bathing arrangements were sadly deficient, as a result of which the feeding and preliminary cleansing of patients was imperfect. The long delay between the reception of the sick and their admission to the wards was a particularly unsatisfactory feature. Improvement, which was only gradual, necessitated constant pressure and much material assistance before it came into being. A research team under Lieut.-Col. Stuart-Harris, R.A.M.C., took over 50 beds. Twelve British Army nurses, who volunteered for this duty, worked in these wards; a detachment of the Friends Ambulance Unit also assisted. There were many difficulties and no few risks attached to this work.

There was a shortage of civil ambulances. This was one reason, but not the most important reason, for the delay in admitting patients to hospital. American and British ambulances were loaned, and even taxi-cabs were utilized. Extra accommodation was soon required, and a building was released from military requisition for housing convalescent cases. The dietary of these patients was quite inadequate. We obtained supplies of meat from our own stocks to augment their meagre fare.

Subsequent Course of the Epidemic

By Jan. 8 cases had increased to 65 in a day. These were well distributed throughout the city. The outlook was black. There was nothing to suggest that this epidemic would not go the way of all previous winter typhus outbreaks and increase in intensity. But this was not so. During the week that followed notifications fell suddenly from 340 to half that number. This level was maintained for each of the ensuing three weeks, when a further sharp drop was recorded. Thereafter the epidemic gradually petered out. About the middle of January places outside Naples began to be affected. Each week until the end of March there were about 30 cases; this secondary focus persisted after the primary one had been extinguished.

Clinical Notes

The disease was not quite as severe in type as that encountered in North Africa. According to Stuart-Harris it resembled the Polish outbreaks of pre-war years. It is probable that it had its origins in Eastern Europe, and not in North Africa. There was a high proportion of cases among children. In these the infection ran a mild course. This to a lesser extent was true of young adults, but in this group the pyrexia persisted for a long time. The general mortality figure was 15%; half the patients over the age of 50 died. The long delays in unheated reception-rooms, before reaching the wards, tended to increase the death rate. Early admission to hospital was not the rule—due not so much to transport deficiencies as to concealment and failure to notify, for which not only the relatives but the civilian practitioners were sometimes to blame. Cases were seldom seen before the fifth or sixth day of illness. The rashes observed were typical, but were not a constant feature. The Weil-Felix reaction was positive as early as the fifth day, and the British research workers were able to recover rickettsiae from the blood in early cases, in a large proportion of patients, using guinea-pigs.

Factors Influencing the Cutting Short of the Outbreak

It was clear after Jan. 9 that the epidemic was under control. Assuming an incubation period of 12 days, and taking into account the delay in notification until the fifth or sixth day of illness, the measures responsible must have been operating 18 days previously—i.e., just before Dec. 23. At this time there was intensive case-searching and mechanical dusting with the U.S. Army pyrethrum powder (MYL) of contacts and persons living near. Until early in January, D.D.T. powder was used in about a tenth of the total dustings only. It was not used at all until the end of this period, by which time there were 6,000 dustings a day. Hospitals, jails, railway stations, and shelters as well as contacts were dealt with. By Dec. 27 all the shelter inhabitants were being dusted every ten days. This work was under the direction of the Rockefeller Foundation team. The initial defeat of the outbreak was brought about by the energetic pursuit of the principles mentioned above—viz., a search for cases and contacts and prophylactic mechanical dusting with an efficient insecticide powder. The armies and their civilian workers were protected with either MYL or A.L.63 powder, which did not at this time contain D.D.T. Only two or three cases of typhus occurred in this large group. Casual employees, whose number was probably equal to the regular ones, produced many cases. They were not under close supervision, and their periodic dusting could not be ensured.

D.D.T. was brought into use on a large scale early in January, and mass civilian dusting was intensified, together with other preventive measures. An enormous decrease in the louse population of Naples followed. Thus the epidemic, already defeated, was given its *coup de grâce*, and all risks of a flare-up were prevented.

Civilian inoculation played only a minor part in the cessation of the epidemic. By the end of April 60,000 out of a population of more than a million had been inoculated, but in December the number was negligible. The British Forces' inoculation state was at a seriously low level early in December: this was not more than 70% at that time. Our Merchant Navy and the Italian armed Forces were totally unprotected until later. From the evidence available, in Algeria as well as Italy, it would appear that inoculation with the killed vaccines does not necessarily protect against infection; its value lies rather in the reduction of the mortality rate.

The economic situation did not improve during the early months of 1945. Indeed, it deteriorated very much at times. In January the Regional Public Health Officer called attention repeatedly to the gravity of the food situation. There were marked deficiencies in the dietary: the protein content was particularly low. The black market flourished, and fantastic prices were paid for such things as tinned meat. None but the wealthy could procure these articles. Poor-class patients admitted to the typhus hospital were all undernourished, unwashed, and very badly clothed, but few were actually near starvation. Regular washing and changing of underclothes was out of the question, owing to the lack of soap and fuel. The number of permanent shelter-dwellers, of which there were about 20,000, fell but little during January. The need for finding other accommodation for these unfortunate people was stressed time and again. A civilian committee detailed to deal with the problem of this large reservoir of infection did little to grapple with it for some time. These people lived under primitive conditions in the labyrinth of ancient caves and tunnels deep below the city. This did not, however, prove to be entirely disadvantageous, for they were always available for supervision and periodic mechanical dusting.

The quenching of the epidemic cannot, therefore, be associated with any improvement in the nutrition or the social and economic condition of the Neapolitans.

General measures such as the prohibition of meetings, concerts, and the use of cinemas, and the search for cases and their removal to hospital, did much to localize points of infection. The Church, Press, and medical profession were used extensively for propaganda. The response to this was variable. The least efficient part of the organization was the control of movement into and away from the city, which was found to be difficult to supervise: there were very many roads to police—military congestion on these roads made it no easy matter to establish check-points; it was unfair to curtail the amount of farm produce brought in daily from the country districts; and there were civil police deficiencies. Forged "dusting certificates" have already been referred to. In spite of these obstacles this aspect of control should have received greater attention. This leakage was responsible for some 300 cases in nearly 50 separate communities outside Naples. Each had to be dealt with individually. Shortage of transport for the "flying squads" of the Typhus Commission meant unnecessary delay in this work. We made repeated representations for the loan of Army transport, but little was done. Since most travellers leaving Naples by train were thoroughly dusted, secondary cases rarely appeared in remote parts of Italy.

Lessons Learned in Naples

(*a*) An epidemic of typhus can be terminated in the winter months even in a city where conditions are most favourable for its spread.

(*b*) Intensive searching for cases and the disinfestation of contacts and the general public were the most important measures adopted. Other public health measures must not be overlooked—in particular, the control of movement.

(*c*) An army can live and work in a typhus-ridden city with almost complete impunity, provided discipline is maintained and prophylactic dusting is carried out efficiently and regularly.

(*d*) The principle of dusting fully clothed people, using hand- or power-dusting apparatus, is a notable advance on former methods of dealing with lousiness in a community. Its use in the Army allows cumbersome steam and hot-air apparatus to be done away with.

(*e*) Any efficient insecticide powder applied in this way will be successful in guarding against infestation and reinfestation, as well as in treating it. The method is without equal for dealing quickly with large groups of people. Its worth was proved at a later date in disinfesting immense numbers of prisoners and refugees.

(*f*) D.D.T. is a new weapon in preventive medicine. It does not kill lice quickly, but it is non-irritant and persistent, having a residual action which prevents reinfestation. It is particularly valuable where people are not under strict discipline and washing and laundry arrangements are defective.

(*g*) Civilian inoculation played no part of importance in the extinction of the epidemic. The British Army, which escaped with one case, contained a large number of uninoculated troops at the peak stages.

(*h*) A well-equipped organization is essential. Adequate staff, equipment, and transport must be available. In Naples this was obtained by pooling Allied resources; but some valuable time was lost, and there were marked deficiencies in some directions, which might have proved a serious handicap.

(*i*) In conclusion, it should be stated that there was the closest and most amicable co-operation between British and American medical officers of the two Armies, the U.S. Typhus Commission, the Rockefeller Foundation, the Allied Commission, and the A.M.G. Senior Italian civil and military doctors also gave full support. This unity must occupy a high place among the factors which contributed to success.

YUGOSLAVIA

We had three foci of typhus infection to contend with in Italy—Naples, North Africa, and Yugoslavia. Large numbers of sick and wounded partisans and refugees were evacuated to Southern Italy from the Balkans. The care of these was a British responsibility. It was known that typhus was epidemic in the Balkans, and measures had to be taken to prevent its being carried to Italy by these evacuees.

During the spring and summer of 1943 about one case of typhus arrived in Italy each week with the sick and wounded. Many casualties came by air; these were dusted in the aircraft. Others arrived by sea. Dusting stations were set up on the island of Vis, the place of embarkation. Information was received that typhus was rife among Italian units left in the Balkans. Supplies of the vaccine of Durand and Giroud, together with dust-guns and A.L.63 powder, were sent them by air. The refugees were all bathed and disinfested. Steam disinfestors were used at first; subsequently mechanical dusting was employed.

It was significant that Yugoslav cases continued throughout the summer. During the following year there were many localized epidemics. A British medical officer with the Partisan forces informed me that there was an epidemic at Sarajevo. All the hospital inmates were lousy. Dust-guns and large supplies of A.L.63 powder were sent to this area. There were also cases of typhus in Greece. After the reoccupation of the country by the British Army, large-scale dusting of refugees was carried out immediately by the hygiene sections. The disease did not become epidemic there.

Although many cases of typhus from the Balkan countries were treated in hospital in Italy, no contact cases occurred either in the Allied Armies or among civilians there. The meticulous care with which both the Army hygiene staffs and the R.A.F. dealt with this problem was thus well repaid.

Summary

An account is given of civilian typhus problems in North Africa, Italy, and the Balkans. Reasons for the comparative immunity from attack enjoyed by the Allied troops are discussed.

In Algeria a severe and widespread epidemic was brought under control by concentrating on mass inoculation of the Arabs with a living vaccine, despite the fact that the infestation rate remained high. In Italy a sharp localized outbreak was terminated in the winter. Inoculation played no part in this. The most important single measure responsible was the mass delousing of contacts and the general population, using insecticide powders applied mechanically. The use of D.D.T. powder on a large scale showed it to be a valuable insecticide, with a marked residual effect. No toxic effects followed its use in powder form.

The energies directed towards the prevention of typhus were well repaid by results. An important reason for success was the co-operation given by the troops themselves—officers and men alike. By contrast, the efforts made to prevent malaria, dysentery, typhoid, venereal disease, etc., were far less successful, although Army hygienists attacked these problems with no less vigour. But the support given by the non-medical branches of the Army was not as whole-hearted. The solution is to be sought in the greater education of all ranks of the Army in the principles of preventive medicine, so that they fully appreciate how important a factor it is in the successful conduct of a military campaign.

I wish to acknowledge my indebtedness to Brig. Galloway, D.D.M.S., A.C.M.F., and to the hygiene officers who worked with me in North Africa and Italy, for the support and co-operation they gave, and the zeal with which they tackled a difficult problem. The following gentlemen, who all played a prominent part in the events at Naples, supplied me with a great deal of information; I have drawn freely from their reports in the preparation of the second part of this paper: Brig.-Gen. Fox and Col. Bishop, U.S. Medical Corps, U.S. Typhus Commission; Dr. Soper, Rockefeller Foundation; Col. Crichton, I.M.S., A.M.G.; Col. Williams, U.S. Medical Corps, Allied Commission. Dr. Grenouilleau, Chief Public Health Officer, Algeria, furnished me with full details of the Algerian epidemic. These have been used extensively in this paper. My thanks are due to him for his unstinted advice and assistance during the critical early days in Algeria.

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PENICILLIN IN TREATMENT OF SEVERE DIPHTHERIA

BY

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Since 1936 Gateshead has had an epidemic of unusually virulent diphtheria with a high proportion of "gravis" type infections, many cases of which have appeared resistant to antitoxin. There have been 2,911 cases with 147 deaths, giving a case mortality rate of 5% over the years 1936 to 1945 (J. Grant, 1936–45). The severer forms of the disease—namely, the pharyngeal and nasopharyngeal varieties—have had an associated case mortality rate of 14%. The earliest opportunity was therefore taken in 1945 to try the effect of penicillin, given in addition to the customary therapeutic dosage of diphtheria antitoxin, on severe cases of diphtheria. The results to date are embodied in this paper.

Few reports have so far appeared in the medical literature on the use of penicillin in the treatment of diphtheria. Symons (1945) described a case of an immunized boy with a severe mixed infection (*C. diphtheriae* and haemolytic streptococcus) who made a dramatic recovery following the administration of antitoxin and penicillin. Archer (1945) reported a similar favourable result in a woman with triple infection (diphtheria, streptococci, and Vincent's angina). Recently Christie and Preston (1946) gave details of two cases of severe diphtheria treated by a combination of serum, intramuscular penicillin, and local penicillin spray; the first patient did very well, but the second died in spite of prolonged treatment.

To carry out an adequately controlled investigation on the value of penicillin in the treatment of diphtheria it would be necessary to analyse the results obtained in three fully comparable groups: (I) cases treated with diphtheria antitoxin alone; (II) cases treated with penicillin alone; (III) cases treated with a combination of antitoxin and penicillin. The last group is included to determine whether penicillin and diphtheria antitoxin exert on each other any synergistic action.

On the preliminary results obtained with Group III cases—that is, those treated with antitoxin and penicillin—it would seem exceedingly unwise to treat severe cases of diphtheria with penicillin only; and, as the results obtainable from the treatment of milder cases with penicillin alone would be of no value as a comparison, Group II has been discarded—for

TABLE I.—*Cases Treated with Penicillin and Antitoxin*

Case	Age and Sex	Day of Disease on Admission	Clinical Condition	Antitoxin: Dosage and No. of Occasions Injections given	Penicillin: When first given. Duration of Treatment. Total given	Days after Admission till Throat Clean	Complications	Days in Hospital	Remarks
1	19 F	1st	O.A.: Mod. tonsillar diphtheria. 20,000 u. D.A.T. given. Membrane spread for 48 hours till severe pharyngeal in type, with faucial oedema and bullneck	170,000 u. 3	3rd D.O.D. 48 hours 400,000 u.	5	Persistent albuminuria	35	Gross oedema of fauces and bullneck; very toxaemic and disorientated. Penicillin on 3rd day; condition improved rapidly. Throat clean 72 hours later
2	4½ F	3rd	Severe nasopharyngeal, with profuse rhinorrhoea and bullneck. Type, "gravis"	120,000 u. 2	3rd D.O.D. 48 hours 400,000 u.	–	Persistent albuminuria. Myocarditis; tachycardia. Vomiting; Death	13	Rapid reduction in bullneck and clearance of rhinorrhoea after penicillin. Cardiac sickness 7th day. Died 16th D.O.D.
3	16 M	2nd	Severe nasopharyngeal. Oedema of fauces and uvula. Bullneck	100,000 u. 1	3rd D.O.D. 48 hours 378,000 u.	5	Persistent albuminuria	62	Swab not negative until 59th D.O.D. Good recovery
4	6 F	2nd	Severe pharyngeal. Bullneck. Type, "gravis"	100,000 u. 1	3rd D.O.D. 48 hours 360,000 u.	5	Nil	57	Good recovery
5	6 F	2nd	Moderate nasopharyngeal. Bullneck. Type, "non-gravis"	70,000 u. 1	2nd D.O.D. 48 hours 360,000 u.	4	Nil	43	Good recovery
6	13 F	2nd	Severe nasopharyngeal, with very gross oedema of fauces, rhinorrhoea, bullneck, and albuminuria O.A.	150,000 u. 2	2nd D.O.D. 4 days 720,000 u.	6	Albuminuria. Palatal paresis. Myocarditis; extrasystoles	84	Spread of gelatinous membrane for 48 hours A.A. Very restless and toxaemic for 5 days
7	16 F	5th	Severe pharyngeal. Marked faucial oedema and early periadenitis	100,000 u. 1	5th D.O.D. 48 hours 400,000 u.	6	Transient albuminuria. Palatal paresis. Mild peripheral neuritis	53	A well-established case on admission
8	19 F	7th	Severe nasopharyngeal. Gross "gelatinous" faucial oedema (and uvula). Profuse post-nasal discharge. Very toxaemic. Type, "gravis"	90,000 u. 1	7th D.O.D. 5 days 500,000 u.	8	Myocarditis; extrasystoles	61	Very ill, and at times disorientated for 5 days A.A. Collapsed on day A.A.; pulse soft and irregular; "cardiac collapse." Responded to restoratives; no complications afterwards
9	25 F	3rd	Severe pharyngeal. Thick membrane with spreading edge extending beyond molar teeth. Bullneck	100,000 u. 1	3rd D.O.D. 3 days 540,000 u.	8	Albuminuria. External and internal ocular palsies. Palatal paresis. Peripheral neuritis	77	One fainting attack during convalescence. No signs in C.V.S.
10	10 F	? 1st	Severe pharyngeal. Moderate faucial oedema. Bullneck	110,000 u. 2	2nd D.O.D. 4 days 400,000 u.	7	Nil	48	Considerable spread of membrane on day A.A. One prophylactic inoculation against diphtheria B.A.
11	20 M	2nd	Moderate nasopharyngeal. Periadenitis	180,000 u. 4	3rd D.O.D. 4 days 400,000 u.	9	Nil	41	Membrane spread for 3 days A.A. Toxaemic and disorientated for 1 week; then made an uneventful recovery
12	14 F	3rd	Severe pharyngeal. Early periadenitis	90,000 u. 2	4th D.O.D. 48 hours 400,000 u.	5	Secondary tonsillitis	34	Spread of membrane 24 hours A.A.
13	20 F	4th	Severe nasopharyngeal. Fauces and uvula very oedematous. Mild periadenitis	100,000 u. 1	4th D.O.D. 4 days 400,000 u.	6	Nil	34	Very toxaemic O.A.

TABLE II.—*Cases Treated with Antitoxin Only*

Case	Age and Sex	Day of Disease on Admission	Clinical Condition	Antitoxin Dosage and No. of Occasions Injections given	Days after Admission till Throat Clean	Complications	Days in Hospital	Remarks
1	12 M	2nd	Severe nasopharyngeal. Very extensive membrane and moderate faucial oedema. Early bullneck	100,000 u. (40,000 I.V.) 1	7	Persistent albuminuria. Palatal paresis. Myocarditis; extrasystoles	75	Lethargic and ill for 4 weeks A.A.
2	6 F	4th	Severe pharyngeal. Membrane on to pillars of fauces only; no oedema. Moderate bullneck	110,000 u. 2	6	Persistent albuminuria. Palatal paresis. External ocular paresis	84	
3	19 F	3rd	Severe pharyngeal. Spread of membrane on one side of soft palate. Moderate oedema. Severe adenitis	90,000 u. 1	4	Transient albuminuria	33	Good recovery
4	25 M	3rd	Moderate nasopharyngeal. Extensive membrane but little faucial oedema. Early bullneck	100,000 u. 1	3	Nil	37	Attack of abdominal pain of uncertain origin in convalescence
5	12 F	2nd	Moderate pharyngeal. Tonsillar membrane O.A.; spread to anterior pillars of fauces	80,000 u. 2	4	Persistent albuminuria. Myocarditis; bradycardia, early bundle branch block	50	
6	7 M	3rd	Moderate pharyngeal. Membrane not extensive. Bilateral adenitis	70,000 u. 1	—	Palatal paresis. Myocarditis; extrasystoles	51	Partly inoculated against diphtheria
7	5 F	? 1st	Severe nasopharyngeal. Oedema of fauces. Extension of membrane 2nd day. Bullneck	100,000 u. 2	—	Persistent albuminuria. Acute myocardial failure (bundle branch block). Death	9	Early cardiac failure with vomiting and bradycardia. Died on 9th D.O.D.
8	24 F	3rd	Severe pharyngeal. Oedema of soft palate and fauces. Severe adenitis. Type, "gravis"	100,000 u. 1	5	Albuminuria. Myocarditis; persistent extrasystoles	47	Very ill 3 weeks A.A. Appeared on verge of "cardiac sickness" several times
9	6 F	2nd	Severe nasopharyngeal. Considerable oedema of fauces. Early bullneck	150,000 u. 3	17	Palatal paralysis	85	Note persistence of membrane on throat
10	35 F	6th	Severe nasopharyngeal. Extensive membrane but no faucial oedema	100,000 u. 1	9	Persistent albuminuria. Myocarditis; auricular fibrillation. Palatal paresis	71	
11	9 F	2nd	Moderate nasopharyngeal. Discrete adenitis	130,000 u. 2	7	Myocarditis; auricular fibrillation. Palatal paresis	79	Very toxaemic. Heart irregular for 7 weeks
12	31 F	5th	Moderate nasopharyngeal. Some faucial oedema. Early periadenitis	110,000 u. 2	5	Mild palatal paresis	58	Persistence of positive throat swab
13	6 M	7th	Severe nasopharyngeal. Profuse rhinorrhoea. No oedema. Periadenitis. Type, "mitis"	60,000 u. 1	5	Myocarditis; extrasystoles. Palatal paresis	75	
14	2½ F	5th	Severe nasopharyngeal. Marked oedema of fauces, palate, and uvula. Post-nasal discharge	60,000 u. 2	3	Albuminuria. Myocarditis; cardiac sickness; extrasystoles. Peripheral neuritis	92	Abortive early cardiac failure with vomiting. Very ill for 5 weeks A.A.

B.A. = Before admission. O.A. = On admission. A.A. = After admission. D.O.D. = Day of Disease.

present purposes at least. This paper is therefore confined to a comparison of the results obtained in cases treated with antitoxin and those treated with a combination of antitoxin and penicillin.

All the cases recorded here were under treatment during 1945 and January, 1946. The majority of the severe cases of diphtheria treated in hospital during that period had penicillin in addition to the usual dosage of antitoxic serum; they are referred to as the "penicillin series." A similar number of cases, comparable so far as is possible in respect to age, treated with serum only and comprising the remaining severe cases and a few that were rather less severe, admitted over the same period, were selected for comparative purposes. It must be emphasized that they were chosen for the clinical severity of their initial lesion, and not because of a high incidence of complications. They are not, strictly speaking, a control series, in that they are not alternate severe cases as admitted. Indeed, a number of them are rather less serious than the penicillin cases. Thus one might expect better results, on the whole, from the control group than from the penicillin series.

None of the cases in either of the groups has been fully inoculated against diphtheria, because it is common experience that the immunized patient, however bad the initial lesion, almost invariably does well, escaping most complications. Therefore, one case of severe nasopharyngeal diphtheria treated with penicillin, and subsequently found to be fully inoculated, is not included in the comparison.

The age distribution of the penicillin cases is rather striking in that it shows a high proportion of adolescents and adults; this topsy-turvy state of affairs has been the experience in Gateshead recently. A further unusual feature is a marked disparity in the sex incidence of the cases, which is shown in the preponderance of females in the two groups.

Dosage and Administration of Penicillin

It is known that the causal organism, *C. diphtheriae*, is penicillin-sensitive (M.R.C. War Memo, 1944, No. 12), but as the disease is essentially toxaemic in nature the organisms, which are confined to the pseudo-membrane, are more or less cut off from the systemic circulation of the blood. It therefore seems doubtful, on theoretical grounds, whether the blood concentration of penicillin obtainable by the orthodox schemes of dosage would reach the organisms in the membrane in effective amount. Because of this doubt the early cases of the series were given double the usual dosage—that is, approximately 200,000 units in the 24 hours. Because of the shortage of penicillin for civilian use this heavy dose was continued for only 48 hours, but, later, doses of 100,000 units in the 24 hours were continued over 3 to 5 days. It is possible, of course, that with heavier and more prolonged penicillin therapy better results might be obtained.

The penicillin, preferably the sodium salt, was given in every case by three-hourly intramuscular injection. Local penicillin therapy was not used in any of the cases tabulated, though it is under trial.

Contents of the Tables

In order that the tables might be presented as clearly as possible they have been abridged; certain facts should therefore be borne in mind when analysing the contents: (i) The disease was confirmed bacteriologically by swabbing the lesion in all cases, though, unfortunately, typing was not carried out in every instance. (ii) In no case is the membrane confined to the tonsils alone. The cases dealt with are divided into "pharyngeal" and "nasopharyngeal," according to the anatomical distribution of the membrane and its associated symptoms and signs. A precise definition of these terms, which are in common usage, is, I think, unnecessary here. The pharyngeal and nasopharyngeal cases are subdivided into moderate and severe, in each case depending on the clinical severity. Throat diagrams have been omitted to facilitate printing. (iii) Antitoxin was given by intramuscular injection, unless stated otherwise.

Discussion of Results

There was one death in each series (Case 2, Table I, and Case 7, Table II). Both patients died from early myocardial failure, of the "cardiac sickness" type; their ages were 4½ and 5 years respectively. In the penicillin group there was only one case with multiple paralyses of any consequence (Case 9); while 9 out of the total of 13 escaped paralysis completely. In the control group only 4 out of 14 escaped paralysis. There were only 3 cases of clinical myocardial involvement in the penicillin series, as against 9 in the controls. The unexpected finding is that while penicillin seems to have little effect on the rate of clearance of the membrane, it does appear to reduce the incidence of complications. However, no conclusions can safely be drawn as a result of such a small series of cases.

The course of the disease is, as is well known, notoriously unpredictable; the severe case may escape all complications, while a comparable subject with a milder attack may fall victim to one complication after another. This makes results very difficult to assess, and while we feel sure that penicillin caused a definite, even dramatic, improvement in some instances—Case 1, for example—it is impossible to be certain that any given patient would not have fared quite as well without it. In severe mixed infections, though, penicillin should be of unquestionable value. I am left with the impression that penicillin therapy shortens the toxaemic state in nearly all cases, in addition to reducing the length of stay in hospital.

A comparison of the tables shows, then, after due allowance has been made for the smallness of the numbers, that, in some respects at least, the patients receiving the penicillin fared better than the controls. It should be remembered here, in addition, that because some of the controls were less severe attacks the control group might have been expected to do better on the whole than the others.

Summary and Conclusions

Thirteen cases of severe diphtheria were treated with systemic penicillin in addition to normal doses of antitoxin. The results obtained are compared with a similar number of comparable cases treated with antitoxin only.

The results reported here show that while penicillin may not have the dramatic curative effect in diphtheria that it has in many other diseases, and can in no way supplant antitoxin, it appears to have been in some degree beneficial to most cases treated. In my opinion it should be given, together with antitoxin, to all cases of severe diphtheria.

I should like to thank Dr. James Grant, Medical Officer of Health for Gateshead, not only for permission to publish these cases, but also for his help and constant interest in this article.

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A SHORT SURVEY OF TRILENE IN GENERAL PRACTICE

BY

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AND

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The object of this survey was to determine the usefulness of trilene in general practice. It was carried out in two independent practices for a period of six months. The points of reference were:—(1) Method of administration: (*a*) choice of appropriate apparatus; (*b*) technique. (2) Minor surgery, especially as to the possibility of exploiting the known peculiar analgesic properties of trilene. (3) Midwifery.

Trilene (trichlorethylene; $C.Cl_2:CHCl$) was rediscovered as an anaesthetic in this country in 1941, after being used to some extent in America. It has a relatively high boiling point (87° C.), which renders it unsuitable for administration on an open mask. In anaesthetic potency it occupies a place between N_2O and ether. During administration in Stage I there is a marked period of analgesia, use of which has been made in midwifery. For deep anaesthesia its use would appear to be limited to that of an adjuvant. It is alleged to have the property

of maintaining anaesthesia with a remarkably small dosage. It is, however, difficult and possibly dangerous to try to obtain the lower planes of anaesthesia by trilene alone. On no account should it be used in conjunction with a soda-ash canister, as the heat evolved has a deleterious action on trilene—dichloracetylene being formed, which causes cranial nerve palsies.

Choice of Apparatus for Administration

It follows from the above that some closed apparatus was necessary for administration, and preferably one in which some rebreathing occurred, in order to warm the trilene with the heat of expired air. It was thought that the Clover inhaler (Hewitt) was a suitable instrument. Another instrument evoking interest from this point of view was the Oxford vinesthene inhaler. The latter was found a useful alternative for purposes of minor surgery, but, having only a small capacity (2 dr.: 7.1 ml.), it was not so convenient for the purposes of midwifery, and as the Clover (Hewitt) was found to cover all requirements, used with or without the rebreathing bag, no further reference will be made to the vinesthene inhaler.

Technique

Minor Surgery.—Trilene was found to be a very useful anaesthetic in the hands of the single-handed practitioner: as will be seen from the illustrative cases, it allowed of careful and unhurried minor surgery in a variety of emergencies, with the help of a pair of untrained hands. Many variations in technique, using Hewitt's modified Clover inhaler, were tried. And as a result of experience it appeared that there was a choice of two procedures.

1. Where the operation was of a very minor nature, and the amount of pain likely to be inflicted was very slight, it was necessary only to render the patient analgesic and not fully anaesthetized. Starting with the inhaler at 1/4 without the bag, and increasing to "full," the operator could then hand over to a bystander to hold the inhaler in place whilst proceeding with the operation. The patient was in this case usually not rendered unconscious, having felt no pain but sensation of touch only, although remembering what was said by others in the room.

2. When the patient expressly desired to be rendered unconscious, or when the operation was such as to be likely to inflict severe pain, the anaesthesia was continued to a deeper stage, and the patient so rendered completely unconscious for the duration of the operation. The inhaler was used as described above, and after a few breaths at 4/4 the bag was added. After a varying length of time automatic breathing indicated a satisfactory depth of anaesthesia. During the period in which the trilene was being tried out the operation was in many cases started before the onset of automatic breathing when it was thought that the patient would be sufficiently anaesthetized. Anaesthesia was usually found to be sufficient, but in order to be quite certain it was decided to wait until the onset of automatic breathing. Failing to do this accounted for one or two unsatisfactory cases of the series. After the stage of automatic breathing had been reached the bag could be removed and a bystander could hold the inhaler while the operation was completed, provided that this was not likely to be very long. Obviously, if a longer time was required it was necessary to have a second practitioner present. There was found to be a very considerable variation in the amount of trilene required for different individuals.

The whole procedure was very simple and enabled the single-handed practitioner to tackle many things that he could not otherwise manage by himself. Recovery was always very quick, and very complete, even when the anaesthetic was continued for a considerable period. Furthermore, the patients seemed to like it, and it was notable how very loudly it was praised by anyone who had had previous experience of other inhalational anaesthetics.

Midwifery.—Here the main use of trilene was as a self-help anaesthetic during the second half of the stage of dilatation. The inhaler was given to the patient (without the bag) set to 1/4 at first, and she inspired through the inhaler during the pain only. After a few pains the setting was increased to 1/2, and at this setting she experienced considerable if not complete relief from pain, while still remaining co-operative. If the setting of 1/2 was not sufficient, it was increased to 3/4 for a time. The patient held the inhaler to the face during the pain only, laying it on the pillow at the side of her head in the intervals. It was found that after some considerable time, as more of the anaesthetic became absorbed, the setting could be reduced, and increased later for the actual delivery.

In a small proportion of cases there was a diminution in the strength of the pains; this was easily overcome by the injection of 0.5 ml. of pituitary extract. As with other sedative procedures, in one or two cases there was a slight post-partum haemorrhage. Provided that this possibility was foreseen, and a syringe containing pituitary extract was left handy, there did not appear to be any real danger of the haemorrhage being at all severe.

TABLE I.—*Minor Surgery: Tabulated Results (All Cases)*

No. of Cases	Treatment Given	Analgesia	Anaesthesia	Failures	Successes	Rapid Recovery	Absence of Sequelae
12	Incision: Boils	4			4	4	4
10	Abscesses, etc., not involving digits		8		8	8	8
	Stitching of lacerations	9		1	8	9	9
	Including midwifery		1		1		
1	Manipulation of toe	1		1		1	1
6	Operations: Involving digits	3		3		3	3
	Whitlow, avulsion of nails, etc.		3		3	3	3
4	Dilatation of multiple urethral structures (one individual)	4			4	4	4
33		21	12	5	28	33	33
17	Above cases treated with analgesia, less those involving digits	17		1	16		

The sole criterion of success or failure was whether the patient felt any pain.

TABLE II.—*Midwifery: Results with Trilene Alone*

	Failures	Partial Failures	Successes	Successes with Amnesia	Total
Primiparae	0	2	9	2	13
Multiparae	0	1	6	2	9
Total	0	3	15	4	22

"Failure" = Little or no relief from pain.
"Partial Failure" = Patient difficult to control and unco-operative.
"Success" = Patient had great relief from pain and remained co-operative and controllable throughout.

TABLE III.—*Midwifery: Trilene followed by Ether**

	Cases	Slowing of Labour	Slight P.P.H.	Slowness of Recovery	Unpleasant Sequelae	Maternal and Foetal Deaths
Primiparae	5	1	1	1	0	0
Multiparae	0	3	1	0	1	0
Total	5	4	2	1	1	0

*Forceps or other operative procedures performed under open ether anaesthesia subsequent to the use of trilene self-help analgesia.

A Few Selected Cases

I. Minor Surgery.—(*a*) Successful analgesia (2 cases); (*b*) a case of unsuccessful analgesia; (*c*) successful anaesthesia in a similar type of case to (*b*).

II. Midwifery.—(*a*) An ordinary successful case; (*b*) an ordinary successful case plus amnesia.

Group I (*a*). Mrs. B., aged 56, fell on some stone steps, sustaining a large laceration on the front of the leg below the patella, 2½ in. (6.3 cm.) long, involving subcutaneous tissues; the patella tendon was showing. Trilene was administered for toilet of the wound and the insertion of two silkworm-gut sutures. The Clover inhaler was used, starting at 1/4 and increasing to 3/4 without a bag. After 10 to 12 breaths the toilet was started and sutures inserted. Recovery was very rapid, and the patient felt no pain whatsoever. She did not completely lose consciousness, but felt that something was being done to the knee, and could see the practitioner as a vague black shadow. She was quiet throughout.

Mrs. F., aged 50. Obese subject; abscess of abdominal wall, probably a suppurating sebaceous cyst. She expressed a wish not to be rendered unconscious. Trilene was given in Clover's inhaler without a bag, gradually increasing to 4/4, and the abscess was opened. She had not lost consciousness, and had felt no pain, although she could tell that something was being done to her abdomen.

Group I (b).—Mr. P., aged 35. Subungual whitlow of index finger. Trilene was administered without a bag, increasing from 1/4 to 4/4. He was a big ex-Army man of 13 st. (82.5 kg.), and his was an unsatisfactory case. He nearly jumped off the bed when the nail was removed, and said afterwards that he felt it being avulsed.

Group I (c).—Mrs. W., aged 30. Large subungual whitlow of finger; she felt ill and was suffering greatly. The terminal phalanx was two to three times its normal size. She was anaesthetized to the stage of automatic breathing. The nail was removed and pus released by probing with forceps. Recovery (1¼ minutes) good, but pain from the finger then made the patient a little faint. She had of course felt no pain during the operation.

Group II (a).—Mrs. H., primipara aged 22. Vertex presentation L.O.A. Administration started at 10 p.m.; one-third dilated. Delivery at 3.30 a.m. The patient continued to self-administer up to and including delivery; setting, 3/4 followed by 1/2 for the greater part of the labour; last 10 minutes, 3/4. She did not remember the birth, and had very little pain. The period 10 p.m. to 3.30 a.m. seemed more like two hours. She was enthusiastic, and stated that after three breaths at 3/4 she lost all pain.

Group II (b).—Mrs. G., primipara aged 24. Occipito-anterior presentation. Started in labour at 8 months. In pain all night; first seen at 9 a.m. Taken to nursing home and found to be one-third dilated. Trilene, self-administered, 1/2 to 3/4; delivered 11.30 a.m. The child weighed 4 lb. 14 oz. (2.2 kg.). Immediately after delivery she sat up and took tea, talking rationally. The patient said she had had hardly any pain. Next day she denied any knowledge of labour subsequent to receiving the anaesthetic, or of sitting up, talking, and taking tea immediately after delivery. She spoke of her surprise, the previous afternoon, to find that she had had her baby.

Conclusions

Minor Surgery.—Provided that very painful procedures—e.g., operations on digits—are avoided, the use of the analgesic properties of trilene in minor surgery seems quite feasible. With the exception of operations on digits, the only analgesic failure was in the case of a child who became very excited and uncontrollable. However, as our experience and confidence increased we leant more to the view that mild anaesthesia in all cases is the more satisfactory procedure. Recovery is rapid and without sequelae, and the agent has not given rise to the least anxiety. Used as a light anaesthetic for minor surgical procedures it appears quite safe.

Midwifery.—An interesting and otherwise unencountered property of trilene has come to light. In rather more than 20% of cases complete amnesia followed its use. With careful instruction, and close observation of the patient in setting the apparatus, it is thought that this figure might be raised a considerable extent. It is a very useful and gratifying phenomenon.

One partial failure was in a case in which the practitioner was summoned at the very end of labour, and trilene used for only about 10 to 15 minutes. The patient was excited and overwrought, and, quite frankly, chloroform would have suited the case better. Used in place of chloroform in the last few minutes of labour, trilene does not show its full range of capability; here the field should be left to the older drug.

The other two partial failures were both relegated to that category owing to the action of premedication (chloral and seconal), and we roundly condemn its use in conjunction with self-help trilene analgesia. The patients were rendered restless and unmanageable, and could not self-administer the trilene.

Comment

The cheapness of the method is phenomenal; 1 oz. (28 ml.) of trilene will last, as used in midwifery, 3 to 5 hours, at a cost of less than 6d.

The wide variation in the requirements of trilene in different individuals, and in the same individual at different stages in midwifery, necessitates a variable administrator for the full exploitation of its remarkable properties. Attention is drawn to this particular point because the fixed type of administrator is tending to become popular in midwifery. We see no reason why midwives should not use the Clover (Hewitt) without the bag.

The general practitioner has in trilene, used in Clover's inhaler, an excellent alternative to the heavy, cumbersome, and expensive N_2O apparatus, both for midwifery and for minor surgery.

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UNDULANT FEVER COMPLICATED BY ACUTE TRANSIENT ATTACKS OF APHASIA AND, DURING CONVALESCENCE, BY DEAFNESS, TINNITUS, AND PARAESTHESIA

BY

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The occurrence of symptoms suggesting mild involvement of the nervous system during the course of undulant fever is well recognized. In 1934 Krabbe estimated neuritis and neuralgic pains as occurring in 75% of cases. Actual recovery of the causative organism from the central nervous system was first described by Hughes in 1897; and De Jong in 1936 collected nine similar observations from the literature and added one of his own. However, definite neurological signs are not commonly recognized. Dalrymple-Champneys (1943) reports meningism in only three of his collected series of 616 cases; and Hardy, Jordan, and Borts (1936) in reviewing 1,080 cases mention "meningitis and meningo-encephalitis—one case simulating brain tumour," indicating that these complications are rare.

A different experience is recorded by Leys (1943), who, reporting eight consecutive cases of undulant fever, found meningism in two and transient aphasia in a third; while Poston and Smith (1936) consider that Brucella infection should be suspected in any case of atypical meningitis. Roger (1929) reviewed the literature and described the neurological complications of undulant fever as cases of: (1) paraplegia, the majority with only motor involvement, but in others there occurred sensory and sphincteric disturbances and pachymeningitis serosa circumscripta; (2) cerebral complications such as hemiplegia and insanity; (3) both isolated and peripheral neuritis; (4) chronic leptomeningitis.

Case History

On August 8, 1944, a medical practitioner aged 31 developed headache, malaise, fever, shivering, and some photophobia. The next day he was better and his temperature returned to normal. As he had spent August and September of the preceding year in Sierra Leone, blood films were taken two-hourly and examined; in the ninth film trophozoites of *Plasmodium vivax* were found. He was given an appropriate seven-day course of quinine and mepacrine; on the last day of this treatment shivering and pains in the region of both sacro-iliac joints occurred. Subsequently his illness followed the usual pattern of undulant fever, with intermittent pyrexia and a curiously rapid alternation of well-being and malaise. Unusual features were attacks of meningism, during which Kernig's sign became positive.

On Oct. 9, at about 5.30 a.m., he suddenly became extremely excited, and thoroughly alarmed his wife and the doctor she called in. This condition subsided at about 7 a.m. When I saw him at 9 a.m. his temperature was 99° F. (37.2° C.) and he was fully conscious but photophobic and uncommunicative, and complained of headache. Kernig's sign appeared on lifting either leg to 65°.

The illness resumed its usual course until, on Oct. 19, at 6.20 p.m., he started to shout; but when the nurse came to him he appeared rational, though she could not at first understand him. I saw him 35 minutes later, when he was obviously rational and quite comprehensible, though slightly dysphasic. At 7.20 p.m. I was called back as he had become very excited. He seemed to understand what was said, and on the whole acted rationally but spoke gibberish. He was obviously intensely anxious to impart some information, but was unable to find the words. Certain phrases kept recurring in their correct context; for instance, he repeatedly said, and obviously meant, "Pay great attention." His mood, however, was far from

normal ; he readily became irritated at not being understood, and showed an impatience quite foreign to his usual temperament. There were no other abnormal neurological physical signs at this time. However, his comprehension of speech was so good that it proved possible, with the help of his wife, to devise a system of questions, which he had only to affirm or deny. He was thus able to impart that his mother suffered from migraine, and that he had a fortification spectrum or some similar visual disturbance and desired me to give him an injection of "femergen." Directly he had imparted this information he settled down quietly. Objectively he regained his usual speech on waking next morning. At this time the optic disks had an appearance suggestive of early swelling which had not previously been present and which had certainly subsided when he was re-examined in March, 1945. On Oct. 30 he had a further attack of aphasia, which was diagnosed by an experienced ward sister as delirium. From the subjective point of view the attacks came on in about five minutes without previous warning or obvious cause, but associated with a feeling of strangeness and visual hallucinations, which were recognized as such. The patient never lost consciousness, and could always understand what was said to him, and even read and grasp the meaning of what he read. He retained full insight and the powers of reasoning. For instance, at the time he thought the first attack was due to a cerebral embolism, and on another occasion, when he wanted an injection of "femergen," he searched the advertisement columns of the *British Medical Journal* to try to demonstrate his idea. He could not write words, but only individual letters. He noticed slight dysphasia for a few days after each attack.

The attacks of aphasia were associated with a severe hemicranial headache. From the third to the ninth month of the illness attacks of classical migraine occurred frequently, at first almost daily: the patient had not previously suffered from migraine, and has been free since recovery.

Although obviously far from completely recovered, he returned to work on March 1, 1945, and soon became aware of a persistent tinnitus, progressive deafness, and tingling of the legs and arms. These symptoms became progressively worse during the summer of 1945, and by the end of June he had developed a marked degree of auditory-nerve deafness. An otologist who was consulted expressed the opinion that the tinnitus, deafness, and absence of findings in the middle ear were suggestive of a hereditary degenerative lesion. However, it would appear that these symptoms were a manifestation of undulant fever, as he found that he had a slight pyrexia during this period. The next winter the headaches, tinnitus, and paraesthesiae gradually disappeared, and his hearing improved at the same time.

The diagnosis was established by the rising blood titre of agglutinations against *Brucella abortus*; thus serum collected on Sept. 2, 1944, caused agglutination of this organism up to dilutions of 1 in 160, while serum collected on Sept. 9 caused, after six hours, agglutination in dilutions of 1 in 1,280 and after 48 hours in dilutions of 1 in 5,120. It is considered unlikely that malaria had any part in the symptomatology after August, 1944, as frequent subsequent examinations of the blood for malaria parasites were consistently negative.

Summary

A case is described in which the patient had undulant fever with intermittent pyrexia for about 21 months ; during this period he suffered three attacks of pure motor aphasia and, when almost convalescent, progressive nerve deafness and tinnitus. He ultimately made a complete recovery.

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ALTERATIONS IN THE "B.P."

The General Medical Council announces certain alterations in the *British Pharmacopoeia*, 1932. The amendment to the monograph on syr. ferr. phosph. c quinin. et strych. (Easton's syrup), which was authorized in the Sixth Addendum, pages 26 to 28, is annulled. The dried root or rhizome of *Cephaëlis acuminata* Karsten, known in commerce as Cartagena, Nicaragua, or Panama ipecacuanha, may be used as an alternative to the dried root of *Cephaëlis ipecacuanha* (Brot.) A. Rich. The requirement that the 2% of the total alkaloids of ipecacuanha, calculated as emetine, in root or powdered ipecacuanha must consist of a definite proportion of non-phenolic alkaloids is deleted.

Medical Memoranda

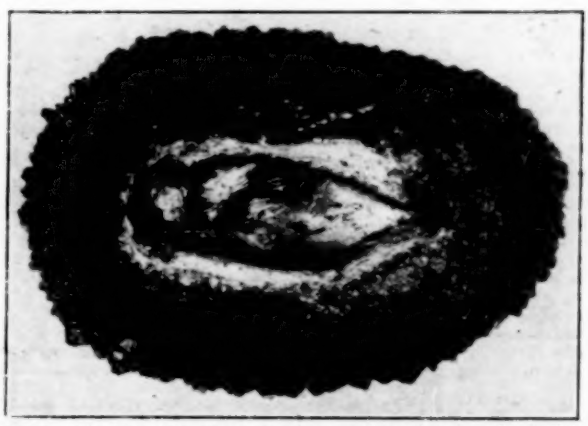
Carcinoma of the Bladder Associated with Presence of a Stone

I would like to place on record the following interesting case, which would appear to support the factor of chronic irritation in the aetiology of carcinoma of the bladder.

CASE RECORD

A man aged 55 was admitted to hospital on May 23, 1944, because of severe haematuria of two weeks' duration. His history revealed that in 1935 he had had an attack of frequency of micturition and dysuria which had lasted but a week and then cleared up. From that time until his admission he had been subject to frequency of micturition. Examination showed that he was passing what appeared to be practically pure blood. He was shocked and exsanguinated. Rectal examination revealed a prostate of normal size for his age, but the base of the bladder was rather tender. Radiographs taken soon after admission revealed a stone in the bladder. The centre of the stone appeared to be composed of some completely radio-opaque substance, whereas the more peripheral parts were less dense.

Blood transfusions were given and cystoscopy was performed under spinal analgesia, and although nothing could be seen because of the large amount of blood in the bladder, the stone was distinctly felt with the tip of the cystoscope. Adrenaline bladder-washouts rendered the bleeding less copious, and four days later suprapubic cystotomy was performed, again under spinal analgesia, and the stone was removed. The stone was chocolate-coloured and of irregular outline but highly polished. It measured 1½ by 1 by 1 in. (3.8×2.5×2.5 cm.). It was cut open along its long axis to determine the cause of the opacity mentioned above, and was found to contain a rifle bullet of a calibre similar to those used in Service rifles (see



Photograph of inside of stone after section, showing the bullet.

illustration). Further questioning of the patient revealed that in 1918 he had been wounded in the upper part of the right thigh, and had sustained a fractured femur on that side, but no history of any symptoms which would support a vesical injury could be elicited. Unfortunately the patient collapsed and died suddenly eight days after the operation.

Post-mortem examination revealed that death was due to bronchopneumonia, and also that the bladder base was infiltrated with a ring of carcinoma. Histological examination of a section of the growth revealed it to be of epidermoid type.

The points raised by this case would appear to be: (1) Did the bullet lodge in the bladder at the time of wounding in 1918, and so form a nucleus for stone formation? If this were so, it is indeed surprising that no symptoms had been noticed at the time of injury. (2) Was the carcinoma due to the long-continued presence of the stone? Seemingly, the epidermoid character would presume a metaplastic change preceding the onset of malignancy.

I am indebted to Mr. A. Hedley Visick, F.R.C.S., of York, for permission to report this case.

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Labial Adhesions in Children

Adherence of the labia minora in children is a condition that is often seen in the out-patient department of this hospital. It does not seem to have gained the recognition either of the general medical practitioner or of the commoner textbooks. In paediatric textbooks it is usually found under the title "atresia of the vulva." It is not an atresia, but a simple adhesion ; and, though the aetiology is obscure, it is likely

that a previous mild attack of vulvovaginitis, which is very common among children of poor hygiene, is a factor.

It is as a rule first noticed by the mother when washing the child, or, at a later date, at a routine examination. It may be diagnosed as a rare congenital abnormality, such as complete atresia of, or a membrane occluding, the vagina. There is never any obstruction of the passage of urine, but some vulvitis and consequent dysuria may be present as the result of imperfect hygiene.

The treatment is simple when once the nature of the condition has been appreciated. The labia minora can often be separated simply by steady, gentle pressure, stretching them apart. An anaesthetic is sometimes necessary to free them, and separation can then be readily effected with a probe. There is almost always some oozing from the freed edges, but this is never severe and it needs no haemostasis. It is important that the vulva be lubricated for a day or two after freeing to prevent the formation of new adhesions; but even when this is done they occur occasionally.

The prognosis is complete recovery and normality, and the mothers should be reassured on this point.

I am indebted to Mr. T. Twistington Higgins for permission to publish this note.

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Noma Treated with Penicillin

The condition of gangrenous stomatitis, or noma, though a well-recognized clinical entity, is now seldom seen in England, but in Aethiopia it appears to occur more frequently, and until the arrival of penicillin it carried a high mortality (approximately 80%). Below are given brief reports of three cases treated with penicillin, all of which showed a highly satisfactory response.

CASE RECORDS

Case 1.—An Aethiopian woman aged about 30 was admitted complaining of a sore mouth and soreness round the vulva. She was ill, pale, and febrile, with large white ulcerating patches on her tongue, gums, and inner aspect of the lips, and similar ulcerations on the labia majora and minora. The Wassermann and Weil-Felix reactions were negative, as were the direct blood smears; smears from the ulcers showed spirochaetes and fusiform bacilli of the Vincent type, together with streptococci and staphylococci. In addition to local cleansing and general care, the patient received an injection of neoarsphenamine (0.6 g.) on the day of admission and again two days later. In spite of this the process was spreading, and patches of black gangrene were appearing on the outer aspect of the lip and also on the vulva. On the fourth day sulphapyridine was started—7 g. that day and 5 g. on each of the two succeeding days—but the gangrene was still spreading and the general condition was worse. Penicillin was started on the seventh day—25,000 units every three hours for five days. A transfusion of a pint (568 ml.) of citrated blood was also given on the seventh day and local treatment with hydrogen peroxide was continued, but the sulphapyridine was stopped. Within 24 hours of starting this treatment the gangrenous patches had become sharply demarcated, and by the fifth day they had separated, leaving clean ulcers. Penicillin was then stopped, and the condition did not relapse.

Case 2.—An Aethiopian boy aged 4 was admitted, having been ill 12 days with headache, fever, and a rash, probably measles, of which there was an epidemic in the town at the time. For two days a black patch had been noticed on the right cheek and slight fever persisted. He was pale and febrile (T. 100° F. (37.8° C.), P. 100). There was a black patch on the skin externally, with discharging pus and surrounding spreading erythema and oedema. Inside the mouth at the corresponding point was a moist grey patch involving both the inner side of the cheek and the upper jaw. Direct smears from this revealed spirochaetes, fusiform bacilli, streptococci, and staphylococci. Penicillin was started at once, and in all 300,000 units were given in three days. The process immediately became sharply demarcated and a slough rapidly separated, leaving a clean through-and-through hole 1 in. (2.5 cm.) in diameter in the cheek. A small bony sequestrum did not separate for some days, but progress was satisfactory. At the time the patient was also suffering from acute amoebic dysentery, which responded to treatment with emetine.

Case 3.—An Aethiopian boy aged about 8 was admitted, also following an attack of presumed measles, with a grey gangrenous patch on the inner aspect of the cheek. Except that the skin was not yet involved, the appearance was identical with that of Case 2. His general condition was satisfactory (T. 100° F., P. 100). Penicillin was started at once, 300,000 units being given in the course of four days. The result was again an immediate demarcation and rapid separation of sloughs, but this time without loss of external skin at all.

COMMENT

The first case occurred at a time when penicillin was very scarce and could be given only if life was endangered; sulphonamides had been tried and proved inadequate. There can be little doubt that had penicillin been given at once, as in the other two cases, much suffering, danger, and deformity would have been avoided.

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Reviews

AETIOLOGY OF SCROTAL CANCER

Cancer of the Scrotum in Relation to Occupation. By S. A. Henry, M.D., F.R.C.P., D.P.H. (Pp. 112; illustrated. 15s.) Oxford Medical Publications. London: Oxford University Press. 1946.

Cancer of the scrotum is relatively rare, occurring in about five per million of the male population, but it is of great interest and importance as the first and outstanding example of human cancer in which the predominant causative factor can be identified. Dr. Henry's short book is valuable as a contribution to cancer research as well as to industrial medicine. The clinical features, course, and treatment of the disease are described briefly. A summary of the history of cancer of the scrotum as an industrial hazard since Percival Pott in 1775 noticed its frequency in chimney sweeps leads to the author's main contribution, which is an analysis of the probable causative factors.

The value of Dr. Henry's discussion of the statistical data is enhanced by his close acquaintance with industrial life and by his personal inquiries into individual case histories. Since 1920 epitheliomatous ulceration of the skin has been a notifiable disease under the Factories Act; 3,333 cases had been notified up to the end of 1943 and about 40% of them were cases of cancer of the scrotum, more than half of these being in cotton-mule spinners. Taking into account the number of workers at risk the incidence was highest in chimney sweeps, followed by patent-fuel makers, cotton-mule spinners, and men employed in the distillation of tar and the manufacture of coal-gas and coke. In the majority of cases, exposure to tarry products or to mineral oils was accepted as the causal factor, but in about 20% of the cases no probable causal factor was identified. The scrotum is the commonest though not the only site of epithelioma even in chimney sweeps and cotton-mule spinners. In terms of laboratory experience, the carcinogenic potency of the noxious materials must be accounted low, for cancer develops in only a small proportion of the exposed workers and the induction period is long. Cancer of the scrotum was not found in cotton-mule spinners who had started work less than 16 years previously; commonly it occurred 40 to 50 years after starting work. Many men had ceased to be employed as cotton-mule spinners for many years before developing cancer and some had been retired from all work for long periods as, for example, for 35 years, when cancer first appeared. As in laboratory experience, cancer can develop long after the inducing stimulus has ceased to operate. It is less clear how long the stimulus must operate in order that cancer shall occur after long delay without further exposures to the carcinogenic agent. Dr. Henry cannot settle this important question, but he finds indications that exposure for one or two years may be sufficient. Further inquiry is evidently required.

The book is well illustrated by photographs of lesions and of industrial processes, and it is enlivened by reproductions of old prints and by many interesting sidelights on industrial and social history.

PHYSIOLOGY AND MEDICINE

The Physiological Basis of Medical Practice. By Charles Herbert Best, M.D., D.Sc., F.R.S., and Norman Burke Taylor, M.D., F.R.C.S.Ed. Fourth edition. A University of Toronto Text in Applied Physiology. (Pp. 1,169; 497 illustrations. 55s.) London: Baillière, Tindall and Cox. 1945.

This textbook is about a third longer than the Bible, and if used as a script for broadcasting it would occupy the B.B.C. Home Service programme continuously for nearly a fortnight. One is astonished at the mere physical achievement of the authors in writing or dictating so many words, and one is further astonished at their energy in producing four editions over a period of nine years, particularly as six of them were years of war in which the authors took an active part. The book is divided into nine sections, dealing respectively with the blood and lymph, the circulation of the blood, respiration, the excretion of urine, digestion, metabolism and nutrition, the ductless glands, the nervous system, and the special senses.

Each section consists of approximately 100 large pages with two columns to a page, so the treatment is frankly encyclopaedic. The book is well illustrated, though the photographic reproductions are poor; there is a coloured plate illustrating the blood cells.

So far as we have been able to test it, the book is admirably up to date. The subtitle, "A Text in Applied Physiology," accurately defines its scope and limitations. Its scope is the whole of physiology, and its limitation that not a great deal of physiology can be profitably applied to medical practice. Our criticism therefore is that it is much too large and detailed to be used as a textbook, and that it is very doubtful whether one book can effectively deal with physiology and its applications. It might be better for physiologists to teach physiology, and the clinical scientists to teach its applications. We should then have less about the physiological basis of muscular contraction, which is in any event contentious; more about the physiology of joints, fasciae, and ligaments; less about the chemical properties of haemoglobin; and more about the air-conditioning apparatus in the respiratory tract, and so on. The problems which puzzle us in medical practice are not the applications of chronaxie or the cardiac output, but the meaning of pain and sleeplessness, of flatulence and heartburn and the like; and these are just the problems on which our physiological colleagues give us least help. They are rightly and properly interested in the growing points of their subject, but they are not so justified in assuming that these things are of general interest. The idea that the whole of physiology can usefully be applied to medical practice is surely as outmoded as the idea that the student should learn every detail of man's anatomy. Genetics, statistics, biochemistry, and psychology all now claim a share in the teaching of normal human function, and we should therefore prefer to see textbooks of medicine for the student showing more of the influence of the basic sciences, rather than see textbooks of the basic sciences growing ever longer.

"Best and Taylor" is a magnificent achievement of intellectual synthesis, and it should be of great value to the advanced student and research worker, but it is not the solution to the problem of bridging the gap between the preclinical and the clinical sciences. We still await the writer who will reorientate the teaching of applied physiology and preliminary medicine in the same way as MacCallum set pathology on a new road after the war of 1914–18.

TROPICAL NUTRITION

Tropical Nutrition and Dietetics. By Lucius Nicholls, M.D. Second edition, rewritten and enlarged. (Pp. 370; 32 illustrations; 11 plates. 27s. 6d.) London: Baillière, Tindall and Cox. 1945.

Knowledge of food constituents is increasing rapidly and Dr. Lucius Nicholls may be complimented on his effort to keep his book *Tropical Nutrition and Dietetics* in line with present knowledge. The second edition includes the later findings on vitamin K, nicotinic acid, pyridoxine, biotin, choline, etc., and even something about the "minor vitamins." This term is used somewhat apologetically for those which are "very unlikely to be deficient from human diets," but the reviewer considers that they may prove to be just as important as those "major vitamins" whose functions are better known. It seems a pity that this term should have crept into the literature. Two chapters on foodstuffs peculiar to tropical climates (their production and preparation), one on food poisoning and one on insect pests of grain foods, and further information on public health activities in relation to nutrition have been added. There are also descriptions of diets suitable for use in hospitals, prisons, and other institutions.

The book gives much useful and interesting information that it might be difficult and would certainly be laborious to find elsewhere. As appendices it contains many useful analytical methods and tables—e.g., the examination of the blood in anaemias, certain tests for vitamins, a dentition table, a determination of prothrombin in blood, instructions for dietary inquirers, average heights and weights of fairly well-grown boys and girls, the A.C.H. (arm, chest, hip) index of nutrition, nutritional section of a food craft exhibition in Ceylon, etc. There are thirty-two figures, some of them photographs and others clear pen drawings. The form of the book, binding, printing, and paper are very good for a "war-time" production.

MEDICAL ENTOMOLOGY

Entomology (Medical and Veterinary). By D. N. Roy, M.D., D.T.M. (Pp. 358; illustrated. Rs. 30.) Calcutta: Saraswaty Library, College Street Market. 1946.

"Entomology," says Dr. Roy, "is no longer restricted to insects alone but it includes the study of the whole phylum Arthropoda." With this fiat, he allows himself scope to deal with most of the smaller vermin encountered by medical men, especially in the Tropics. The range of subjects treated should make the book a useful one and the profuse illustrations are of considerable assistance in identification.

Unfortunately a closer examination of the book reveals quite a large number of small errors and ambiguities. We may quote some statements taken at random to illustrate this: p. 11 (of the cockroach), "Ants and other hymenoptera often parasitise the egg pod"; p. 273, "Lice are usually killed by thirty minutes immersion in water . . ." (not true), and "Wind may be responsible [for spreading lice] to a small extent by blowing the nits" (nits are firmly attached to hair or garments); p. 268, "The main features of this order (Anoplura) are . . . (2) the integument is highly chitinised" (does he mean "*not* highly chitinised"?); p. 326, "The egg (of *Sarcoptes*) is ovo-viviparous . . ." (?); p. 289 (speaking of control of bed bugs), "French chalk is a good insecticide" (not true). In dealing with the Arachnidae, Dr. Roy has obviously confused the superfamily Ixodidae with the order Acarina. If one transposes the two words on page 291 (where they occur as major headings!) his text reads correctly.

The control sections are perhaps the weakest parts of the book, for the most recent methods and materials are either omitted or are given with small errors in the directions for use, which sometimes vitiate the whole procedure. In general the whole work gives the impression of being rather hastily finished. Considering that the scope and treatment lay the foundations of a very useful handbook, it is a pity that more care was not taken with these essential details.

Notes on Books

The very popular textbook *A Short Practice of Surgery* by Hamilton Bailey and R. J. McNeill Love was first published in 1932, and after six revisions and five reprintings appears now in a seventh edition (H. K. Lewis and Co.; 40s.). Owing to the inclusion of new material the present volume is somewhat larger than its predecessor; with the index it runs to nearly 2,000 pages. Many chapters have been rewritten and there is an additional one on the larynx. New illustrations have been added and some of the former figures are replaced, bringing the total number to 1,063, of which 203 are coloured. The printing and general lay-out of the book are most satisfactory. As before, advanced surgery and rare conditions are relegated to small type, which is quite legible. This edition also includes a glossary of anatomical names, giving in parallel columns the page reference, the structure mentioned in the text and the equivalent term in the Birmingham revision of the B.N.A.

The Autonomic Nervous System by Dr. ALBERT KUNTZ (London: Baillière, Tindall and Cox, 42s.), which has already an established place in the literature of the autonomic nervous system, has in its third edition been thoroughly revised and in part rewritten. The chapters dealing with the central control of autonomic functions, including cortical influences as well as hypothalamic, and the newer information regarding conduction paths, are representative of the present-day views; clinical bearings are abundantly introduced. The general get-up is excellent.

The first number of *Tuberculosis Index and Digest of Current Literature*, dated March, 1946, has been published for the Tuberculosis Educational Institute by the National Association for the Prevention of Tuberculosis, with a foreword by Sir Francis Fraser. The aim of this periodical is to give a complete list of current articles on all aspects of the disease as they appear in world scientific and medical literature. The list is made up of articles published in the preceding three months. The *Tuberculosis Index and Digest* is divided into 23 main sections, each under the supervision of an expert. The annual subscription is 15s. or $4, and communications should be addressed to the Editor, N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1.

Nova et Vetera

THE LONDON LOCK HOSPITAL AND ITS FOUNDER

The bicentenary of the London Lock Hospital, founded July 4, 1746, lends interest to the details of the life of the founder, William Bromfeild (as he always spelt his name), whose initiative made its existence possible.

William Bromfeild (1713–92) was the son of Thomas Bromfeild, M.D.Oxon, and Mary Briggs, daughter of William Briggs, M.D., physician to William III and to St. Thomas's Hospital. He was born in New North Street, Holborn, and was baptized July 30, 1713. He early attracted the interest of John Ranby (1703–73), Serjeant-surgeon to George II and first Master of the Corporation of Surgeons after their separation from the barbers (1745). It probably was Ranby's influence which got him appointed demonstrator of anatomy at Barber-Surgeons Hall in 1744, and surgeon to St. George's Hospital on August 9 of the same year. Next year he became surgeon to the Prince of Wales, who was President of St. George's, and on his death in 1751 continued as surgeon to the Dowager Princess.

It was at this period in 1746, at the age of 33, that Bromfeild founded the Lock Hospital on a site half-way down Grosvenor Place from St. George's. There he bought the remaining 95 years of a 99-year lease of "the house lately in the possession of Mr. John Cooper" for £350, and a ground rent of £10 annually paid to Sir Robert Grosvenor, Bt. This he sublet to the Trustees of the Hospital for £17 10s. a year plus the ground rent until such time as they could repay him the £350 purchase money, and so have legal possession. The hospital was opened with 30 beds on Jan. 31, 1747, and it has continued its charitable work ever since.

Bromfeild must have been a good mixer, for his practice became large and fashionable, and he was able to gather an influential list of patrons and subscribers to his hospital. Obviously it was very badly wanted in the West End, for of the 442 patients admitted in 1758 "*one hundred were married women, some with infants at the breast, many of whom were admitted almost naked, penniless, and starving.*"

At that time there were still two Lock Hospitals in London, one in Southwark for men and one in Kingsland for women. These two were all that were left of the seven lazar houses controlled by St. Bartholomew's Hospital after the Dissolution of the Monasteries. But both of them were closed in 1760, and Bromfeild's hospital was thus left to carry on alone in London for roughly the next 160 years. In 1760 he became one of the Court of Assistants of the Surgeons Company. In 1768 he was Senior Warden, and in this capacity passed John Hunter for his diploma. In 1769 he was Master, and in the same year made surgeon to Queen Charlotte, wife of George III. In 1780 he resigned at the age of 67 from the Court of Assistants, and also from St. George's after 36 years' service.

He had two sons and a daughter. The elder son, William Heriot Bromfeild, M.D.Padua, died in 1762. The younger son, Charles Bromfeild, succeeded his father as surgeon to the Lock Hospital in 1770 and as assistant surgeon to St. George's in 1778; but he predeceased him in 1784. An engraving of Charles is often mistakenly catalogued for that of his father, of whom only three authentic portraits are known: one by Vandergucht, one by Cosway, and one painted by Nathaniel Dance in 1773 which is now in the Lock Hospital.

According to Ottley (*Life of John Hunter*, p. 25) Percivall Pott ranked highest as a surgeon in this period, "but the second stations were ably filled by Bromfeild, Sir Caesar Hawkins of St. George's, and Samuel Sharp and Warner of Guy's." He published a small work in Latin, *Observationes ad lithotomiam attinentes aliaque Chirurgiae Monumenta*, Florence, 1761; but his *Chirurgical Observations and Cases* published in 1773 is Bromfeild's main contribution to surgical literature.

He seems to have had certain literary tastes and to have been on friendly terms with the artistic and musical world. He adapted an old play *The City Match*, and under the title of *The Schemers* this was produced by Garrick at Drury Lane for the benefit of the Lock Hospital. Benefit plays were given annually for the hospital at Drury Lane and Covent Garden. Garrick, J. Rich, Board, and Giardini were his friends; and he persuaded Foote, Powell, and Macklin to play for him. Handel gave the first performance of *Judas Maccabaeus* to the hospital after Bromfeild had operated on him for cataract.

Any account of his life would be incomplete without reference to the Rev. Mr. Madan, the brilliant eccentric preacher who founded the Lock Chapel and made such a success of it that he was able to contribute from the pew rents £1,000 a year to the hospital funds. Madan's sermons drew large congregations. He was a musician and published a book of hymns. He was a friend of John Wesley and secured Charles Wesley as organist to the Annual Oratorio in the Chapel. He was a cousin of Cowper the poet. Between him and Bromfeild they kept the hospital going financially up to 1780, by which time it was soundly on its feet. Both resigned from the hospital that year owing to differences with the Board. Both were forceful dictatorial men and resented innovations which were necessary. Madan died in 1790. Bromfeild followed him, full of years and honours, in 1792.

J. J. A.

EARLY METHODS OF ANAESTHESIA

Ancient Anodynes. Primitive Anaesthesia and Allied Conditions. By E. S. Ellis, M.R.C.S. With foreword by T. K. Penniman, M.A. (21s.) London: William Heinemann Medical Books, Ltd. 1946.

In this attractively printed and bound book Dr. Ellis has gathered from some hundreds of sources anecdotes and facts about the attempts of all races to subdue pain and obliterate sensation. He has researched into methods of "physical anaesthesia," the production of unconsciousness by a blow before performance of an operation; into "psychological anaesthesia" or forms of "mesmerism"; and into the inhalation of drugs to produce anaesthesia. References to various sleep-giving drugs were made in literature four centuries before Christ, and biblical references have not been neglected in the exhaustive catalogue. Like the results of an excavation, sorted, classified, and displayed, the book offers a series of facts almost entirely without comment. Mr. Penniman in his foreword says "it is a work of reference rather than one to be read straight through." Certainly for one who wishes to know of literary references to early methods of anaesthesia it will be invaluable. Attention is drawn in the preface to the fact that the war has made it impossible to finish the book in the form originally intended. The material which the author has compiled is such that one wishes it had been presented, as it could have been, in a completely absorbing form. This is left to those who will use Dr. Ellis as their source of reference. The book concludes with two chapters on the history of modern anaesthesia; these are less staccato and breathless than the rest of the book, but remain the brief collected stories of the participators in the discoveries of ether, nitrous oxide, and chloroform as anaesthetics. There is a full list of the authorites quoted.

THOMAS BILL, M.D.

"GENEALOGIST" writes: Details about Thomas Bill, physician to Henry VIII and Edward VI, "in addition to those recorded by Munk in the *Roll of the Royal College of Physicians*," were given in the *British Medical Journal* of Aug. 18, 1945 (p. 228), and can now be supplemented by reference to Cussan's *History of Hertfordshire* (Odsey volume), according to which the earliest mention of any of the Bill family at Ashwell is that of Christiana Bill, who was assessed towards a subsidy in 1307. The next mention is of the grandfather, Christian name not given, and the father, Thomas, both of Ashwell, of John Bill, draper, in his will dated Aug. 31 and proved Oct. 26, 1503. John and his wife Agnes had one son, also called John, alive in 1524, who married one Margaret, alive in 1551, and had three sons and two daughters: (1) John, the eldest son, a lawyer and probably King's Serjeant, who married twice, first wife dead by 1557, name not given, by whom he had descendants, and second wife Susan Samwell, without issue; (2) Thomas, the subject of these notes; (3) William, Dean of Westminster, who died without issue; (4) Mary, alive in 1558; and (5) a daughter, name not given, married to Thomas Gosnold, also alive in 1558. Thomas Bill, the physician, was M.D.Pavia before 1533 and was incorporated at Cambridge in 1534. His will is dated June 1, 1551, and was proved on Feb. 23, 1552. He married Agnes, daughter of John Theobald, of Seale, Kent, by whom he had Margaret, sole daughter and heir, who married James Haydock, of Graywell, Southamptonshire, by whom she had a family. Agnes Theobald's second husband was Percival Smallpage, and her third Bernard Randolph. Cussan gives the Bill arms: "Ermine; two Bills in a saltire proper; on a Chief azure, between two Pelicans' heads erased argent, vulning themselves, a Pale of the last, charged with a Rose gules"; and the crest: "A Pelican's Head erased, vulning itself as in the Arms." The bills, a canting device, are war weapons, and "vulning" means "wounding," an allusion to the legend that pelicans drew blood from their breasts to feed their young.

Sir Arthur S. MacNalty's presidential address to the History Section of the Royal Society of Medicine on "The Influence of Medical Poets on English Poetry" has been published in full in the June issue of the *Poetry Review*. A limited number of copies (2s.) may be had from the secretary, the Poetry Society, 33, Portman Square, W.1.

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THE NUTRITIVE VALUE OF BREAD

The National loaf has darkened in colour and dwindled in size, and bread and flour are now to be rationed. At the present critical time informed medical opinion is necessary both to prevent undue dismay among the general public and to counteract any possible complacency among those in authority. It is fortunate, therefore, that the Nutrition Society should recently have published a full account[1] of its important conference in February, 1945, on "Factors Affecting the Nutritive Value of Bread as Human Food."

Judged solely on its content of nutrients, brown wholemeal flour, in which 100% of the grain is "extracted," is much superior to white flour, in which as little as 70% of the grain may be used. McCance has compared the amounts of nutrients present in the whole wheat grain with those found in the central portion of its endosperm, from which the whitest fraction of flour is derived, and his data leave no room for doubt. Thus the protein contents of the whole grain and the endosperm are given as 8.9% and 8.1% respectively, fat 2.2% and 0.7%, phosphorus 311 and 59 mg.%, iron 3 and 0.5 mg.%, vitamin B_1 1.6 and 0.1 i.u. per g., riboflavin 1.5 and 0.4 μg. per g., and nicotinic acid 42 and 5 μg. per g. Only in carbohydrates does the endosperm surpass the whole wheat, containing 75.8%, as against 66.8%. Similarly the amounts of nutrients in intermediate grades of flour may be correlated with the percentage of the whole grain which is included. Thus the present light-brown flour of 90% extraction is superior to the 85%, 82½%, and 80% broken-white flours which we had in the less hungry days during and just after the war.

In general the amounts of vitamins and minerals decrease steadily with reduced rates of extraction, until, according to Kodicek, a minimum is reached at about 70%. The different nutrients, however, are present in widely varying concentrations in different parts of the "offals." As a result the amounts of individual factors in flours of different extractions do not run quite parallel. Because the scutellum is very rich in vitamin B_1, flour of 85% extraction milled to contain this fraction is little inferior to wholemeal in its vitamin B_1 content. Copping gives values of 1.40, 1.15, and 0.35 i.u. per g. for wholemeal, 85%, and 73% extraction flours respectively.

The nutrient contents of flours, however, represent but part of the story. Many people prefer the neutral taste of white bread to the slightly bitter taste of brown. The texture of brown bread often tends to be harsh. A high proportion of indigestible fibre may cause diarrhoea in sensitive persons, while the heavy manual worker has to eat a greater bulk of brown bread than of white to satisfy his heavy calorific demands. The superiority of high extraction flour in phosphorus, moreover, may actually be a disadvantage. According to McCance about 60% of this element in wholemeal flour is present in the form of phytate, which might be regarded as a potential cause of rickets.

Arguments for high- and low-extraction flour were thoroughly sifted at the 1945 conference, and many nutritionists agreed that a wise choice had been made in selecting the 85% extraction flour which served so well for a long period during the war. It combined light colour, good taste, and low roughage, with a vitamin B_1 content little inferior to that of wholemeal. Reasonable amounts of other vitamins and minerals were present, any deficiency in the latter respect being readily adjusted by adding calcium carbonate. The action of the Government when, at the time of the conference, it had reduced the rate of flour extraction to below 85% was strongly criticized by McCance and others interested in wheat as food for human beings. Pig and poultry keepers, and to a less extent dairy farmers, were more inclined to rejoice, since the rejection of a highly nutritive wheat fraction from the human loaf raised hopes of less precarious feeding for farm animals. If the National loaf was less pleasing to nutritionists, at least the prospects for eggs and bacon were improved. During the present year, however, the shortage or dislocation in world wheat supplies has caused fundamental changes in official policy. It is essential, we are told, to spare food for Germans and Indians, who are worse off than ourselves. The extraction rate has therefore been raised from about 80% to 90%, which means roughly that, for every eight loaves we eat, one loaf can be spared for use elsewhere. On the other hand, wheat offals have been cut from 20% to 10%, which means that our farm animals will have only about half their previous supplies of food from this source. Fortunately the new 90% loaf, if uninviting to many palates, is richer in nutrients than the loaf it replaces. We shall not starve. But cakes and pastries, if any, will become even more austere, and with a declining animal population the so-called protective foods will probably become more scarce than ever. The new Minister of Food, therefore, has taken over the reins of office at a most serious juncture. While all will hope that he may realize his ambition to introduce a little more variety into our diet, it is difficult to see from where that variety is to come: not everyone is enthusiastic over the prospect of having more dried egg.

[1] *Proc. Nut. Soc.*, 1946, **4**, No. 1, 1–50. See also *British Medical Journal*, 1945, **1**, 379.

PENAL JURISDICTION OF THE G.M.C.

In May, 1945, the General Medical Council, after a long hearing to which the public were not admitted, erased from the *Medical Register* the name of Dr. Arthur Henry Hennessy, a general practitioner of Sanderstead. The charges were that on Sept. 26, 1944, he had attempted to commit adultery with an unnamed woman patient and had indecently assaulted her. Dr. Hennessy had no right of appeal against this decision, but last April he sued in the High Court for slander Miss Irene Boyanton, of Sanderstead, the patient who had accused him of assaulting her.

He showed that since the G.M.C. hearing she had alleged to two persons in the neighbourhood that he had made love to her and criminally assaulted her in his surgery on Sept. 26, 1944—the allegations which she had made before the Council. He called certain evidence which (for reasons which did not appear) had not been before the Council. Mr. Justice Charles said in his judgment[1] that he utterly disbelieved Miss Boyanton's story of the assault and was satisfied that she had lied in uttering the slanders and in saying, as she had, that Dr. Hennessy had committed adultery with her regularly. He found it difficult to believe that if the Council had had the fresh evidence before them they would not have believed it in preference to that of Miss Boyanton, for she patently lied. In this shocking case there had been obvious slanders, meant to damage and damaging, spoken by a woman who had shown herself a willing and ready perjurer. The Council, in the absence of adequate evidence, had accepted her story and struck this wretched man off the *Register*. The slanders, for which he was awarded £2,000 damages, with costs and an injunction against repetition, were utterly and absolutely untrue, and he was hopeful that the G.M.C. would see their way to reinstating Dr. Hennessy, for in the absence at their proceedings of the evidence he had had before him there had been a gross miscarriage of justice. He offered to communicate with the Council, an offer which Dr. Hennessy's counsel gratefully accepted.

This case brings into clearer prominence than has any other of recent years the Council's defects as a disciplinary tribunal. No blame whatever attaches to the members of the Council for these defects; they are inherent in its statutory constitution. As Mr. Justice Humphreys remarked in the Spackman case, the Council is a domestic forum left to manage its own affairs as it considers best in the interests of the profession. It is not bound by rules of evidence; it has no power to administer an oath or to compel the attendance of witnesses. Its rules permit the reception of written depositions or statements as well as of oral evidence. In short, his Lordship said, the Council is free to adopt its own procedure and to decide on its own methods of proof so long as it obeys the dictates of natural justice. With all respect to so great a judicial authority, surely such cases as this show clearly that freedom is just what the Council does not possess. Because it cannot compel witnesses to attend, nor to take the oath, it has to put up with inferior and often biased evidence, especially in cases in which the complainant is actuated by spite and a desire for private vengeance. To combat the allegations against him the doctor can bring only such witnesses as he can persuade to attend, and the expense of bringing them and of maintaining them during their stay in London falls entirely on him—unless he is defended by a defence society. If he is condemned in these unsatisfactory circumstances he has no appeal. Surely the fact that the Council is a domestic tribunal does not justify its being forced to conduct its disciplinary duties in this manner. A doctor's livelihood is at least as important as any of the issues tried before civil courts, in which evidence is given on oath and before which witnesses can be compelled to attend.

[1] *Times*, April 13; *British Medical Journal*, April 27, p. 665.

Now that radical reforms in medical practice are about to be enacted, the statutes governing the General Medical Council will doubtless be drastically revised. The Council itself is in fact deliberating on the changes which would in its opinion be desirable in its own constitution. A committee of the Council of the B.M.A. is investigating the composition, functions, and procedure of the G.M.C. as part of a review of the working of the Medical Acts. In this issue too we publish (p. 21) a carefully considered memorandum which has been drawn up by the medical defence societies. A new Medical Act should clearly bring the Council, as a disciplinary body, into line with other domestic tribunals, particularly the Disciplinary Committee of the Law Society, which have been set up in more recent years. It should have power to compel witnesses to appear before it, to oblige them to take the oath, and to award costs against an unsuccessful party. Strong arguments could also be adduced in favour of entrusting the hearing of penal cases to a committee, perhaps with a legal chairman. Finally, an aggrieved respondent should be entitled to move the High Court to re-hear the case against him. An appeal to the Court is open to a solicitor or to a dentist; there seems no reason in logic or justice for denying it to a doctor. By good fortune in Dr. Hennessy's case the time between the High Court's finding and the Council's recognition of it was relatively short. If, however, the action had been tried just after the May meeting instead of before it Dr. Hennessy would have had to remain unregistered until the meeting of the Council in late November, unless a special meeting had been convened at a cost of some hundreds of pounds. A right of appeal, with power in the Court to restore a name by order, would avert not only miscarriages of justice but also regrettable delay between the clearing of a doctor's name and his reinstatement.

PROBLEM OF HAEMOPHILIA

Whatever success has been achieved by local treatment of accessible bleeding areas, and however this may be improved by fibrin dressings and more potent thrombin preparations, only prophylaxis can make the life of the haemophilic relatively normal. Crippling joint-changes, internal haemorrhages, and constant anxiety can only be avoided if the patient's clotting function is brought within normal limits and kept there. In this respect a line of approach that began forty years ago is becoming promising. In 1906 Weil[2] claimed that the injection of normal human serum was of benefit in haemophilia. Other workers were not so successful, and attempts to improve the original method by using more specific coagulant fractions of blood, such as platelet extracts, resulted in failure. Ten years later, however, Addis[3] and Minot and Lee[4] showed that the intravenous injection of serum, or of whole blood, shortened the clotting time of haemophilic patients. Blood transfusion became the accepted, and indeed the only reliable, form of general treatment, though its effect was transitory. Then in 1937 Patek and Taylor[5] demonstrated that the anti-haemophilic activity of normal blood resided in the cell-free globulin fraction of the plasma. The corresponding fraction of haemophilic plasma had no such activity, so that it appeared that some unknown factor,

[2] *Bull. Mém. Soc. méd. Hôp.*, Paris, 1906, **23**, 1001.
[3] *Proc. Soc. exp. Biol.*, N.Y., 1916, **14**, 19.
[4] *Arch. intern. Med.*, 1916, **18**, 474.
[5] *J. clin. Invest.*, 1937, **16**, 113.

present in normal plasma, was absent or inactive in haemophilia.

During the war the fractionation of human plasma on a large scale was developed by Cohn and his associates, and in consequence a number of subfractions of normal human globulin have been available for investigation by American workers. Taylor[6] and Minot[7] have made a careful examination of the anti-haemophilic activity of a large number of such fractions. Their work reveals that this activity does not depend on the fibrinogen thrombin or prothrombin content of the fractions, nor on their ability to develop fibrinolytic activity after treatment with chloroform. This latter observation is of importance since Tagnon[8] observed that haemophilic plasma is deficient in this ability, and it might appear that the fibrinolytic enzyme of plasma has a place in normal coagulation. Unless the classical theory of blood coagulation is to be abandoned, the evidence suggests that it is the thrombokinase of normal plasma which is being studied, and which is reduced or inactive in haemophilia. The investigation may, perhaps, be taken a stage further by the work of Tocantins[9], demonstrating an increased anti-thrombokinase activity in haemophilia, which may explain the results of other workers. This is probably the first positive finding of importance in research on haemophilia. Such an anti-kinase might be expected to be anti-fibrinolytic also, since Macfarlane and Pilling[10] have shown that thrombokinase and fibrinolysin may be inhibited by the same substances. Interest should centre now on the inhibitor systems in blood coagulation. It is the concept of a constantly operating dynamic equilibrium, between enzymes on the one hand and inhibitors on the other, which is most likely to resolve the problems of coagulation in general and of haemophilia in particular.

As to the practical application of this work, too much must not be expected. The activity of whole blood has been concentrated into a smaller volume by plasma fractionation, but that is all; 200 mg. of active protein now have the same effect as 100 ml. of whole blood, an effect that only lasts 24 to 48 hours. Future work may reduce the effective dose still further, and regular injections may keep the patient's clotting time below the danger level. But it must be remembered that haemophilia is not a deficiency disease; it is an inherited state of disordered physiology. It is as natural for the clotting time to be long in haemophilia as for it to be short in normal people. The haemophilic system may react to attempts to alter its clotting equilibrium by compensatory processes rendering the introduction of foreign substances useless or even harmful.

MANGANESE PNEUMONITIS

Chronic manganese poisoning was first described in 1837 by Couper,[11] and since that time some 353 cases have been reported. Manganese appears to be an essential substance in plant and animal nutrition. It occurs in nature as the oxide in the ores, pyrolusite, braunite, hausmanite, and manganite, which are found in Russia, India, the Gold Coast of Africa, Brazil, the United States, and Cuba. Its most important alloys are spiegeleisen and ferro-manganese, but silico-manganese and silico-spiegel are employed in certain grades of steel. Manganese bronze resists corrosion and is used for marine construction and mining machinery. Manganese is also alloyed with aluminium, tin, arsenic, antimony, bismuth, and boron. The oxide is used in bleaching glass, the chloride in dyeing, the sulphate in calico printing, and the persulphate as an oxidation agent in making organic products. Manganates and permanganates are used for preserving wood, for bleaching textile fibres, and for disinfecting and oxidizing purposes.

In chronic poisoning the commonest pathological changes affect the central nervous system and result in the Parkinsonian syndrome. Accounts of the condition have mostly come from Europe, but cases have been reported in England by Charles,[12] and by Owen and Cohen,[13] and recently a full review has been produced by Fairhall and Neal[14] in the United States. As long ago as 1921 Brezina[15] drew attention to the relationship between manganese and pneumonia; he reported that five out of ten men working in a pyrolusite mill had died of pneumonia in a period of two years. Baader[16] ascribed to manganese the high incidence of pneumonia among workers making dry-battery cells. Elstad[17] in Norway observed that the erection of an electrical plant for smelting manganese at Sanda was followed by a tenfold increase in the mortality rate for pneumonia in that area; a pall of smoke containing manganese oxide with particles of less than 5 μ overhung the town. Immediately before the war Buttner[18] reported that men working in a Rhenish pyrolusite mine had an average pneumonia rate of 17 per 1,000 with an average death rate of 6.3 per 1,000, as compared with a pneumonia rate of 0.54 per 1,000 in a control group from Leipzig.

Lloyd-Davies[19] has now recorded his observations on men employed in the manufacture of potassium permanganate and exposed to the inhalation of dust containing manganese dioxide and the higher oxides of manganese, the manganese content of the atmospheric dust being between 41 and 66%; practically all the particles were below 1 μ in size, and 80% were below 0.2 μ. This group of men, numbering from 40 to 124, had an incidence of pneumonia which varied from 15 to 63 per 1,000 in the period 1938 to 1945, compared with an average of 0.73 per 1,000 for the same period among male members of Boots Health Insurance Society. Nasopharyngeal catarrh was common, and attacks of bronchitis were frequent; these always subsided after removal from exposure. The pneumonia which occurred did not differ clinically from that which may develop in any individual, and Lloyd-Davies illustrates his paper with radiographs showing upper-lobe consolidation which resolved in nine weeks. He suggests, however, that the temperature and general condition of the patient respond more slowly than usual to sulphonamides. No permanent pulmonary changes were observed either clinically or radiologically.

Animal experiments in which mice were exposed to manganese dust were complicated by the obvious toxic effect of the manganese, but the histological effects on the lungs were uniform and striking. The changes were dependent on the length of exposure, and varied from slight mononuclear infiltration to intense mononuclear interstitial infiltration with many dust-laden cells, progressing finally to consolidation, including haemorrhagic areas, leading to complete disorganization of the lung structure. The changes were most marked around the bronchi; cells lining the bronchi were swollen and had undergone hydropic change. Lloyd-Davies thinks the manganese has a direct influence on the cells of the bronchial and alveolar epithelium. The presence of dust cells, even though few, suggests that the dust is phagocytized, but it is probable that after absorption the phagocytic cells are killed. Either before or after absorption manganese would appear to

[6] Ibid., 1945, **24**, 698.
[7] Ibid., 1945, **24**, 704.
[8] Ibid., 1943, **22**, 127.
[9] *Amer. J. Physiol.*, 1943, **139**, 265.
[10] *Lancet*, 1946, **1**, 888.
[11] *Brit. Ann. Med. Pharm.*, 1837, **1**, 41.
[12] *Brain*, 1927, **50**, 30.
[13] *Lancet*, 1934, **2**, 989.
[14] *Nat. Inst. Hlth. Bull. Washington*, No. 182, 1943.
[15] Internationale Ubersicht über Gewerbekrankheiten nach den Berichten der Gewerbeinspektion der Kulturlander über das Jahr 1920–21, p. 40, Berlin, 1929.
[16] *Arch. Gewerbepath. Hyg.*, 1933, **4**, 101.
[17] Report on Eighth International Congress for Industrial Accidents and Occupational Disease, Leipzig, 1939, **2**, 1022.
[18] Ibid., p. 1022.
[19] *Brit. J. industr. Med.*, 1946, **3**, 111.

have a specific action, causing intense mononuclear proliferation and infiltration, and being sufficient to cause consolidation of the lung with necrosis and haemorrhage.

TUBERCULOSIS UNDER THE BILL

Controversy over the general aspects of the Health Service Bill has obscured the question of what the Minister intends for the tuberculosis services. Indeed, the name of this disease does not appear anywhere in the text of the Bill. This is perhaps explainable in a measure purporting to deal with health rather than disease, and the future of our tuberculosis services when the Bill becomes law is at present a matter for deduction and conjecture. From what can only be guessed, or read between the lines, anticipations on the subject are not free from misgiving. Presumably the treatment of cases of pulmonary tuberculosis, which form a majority of the tuberculous population, will be in the hands of chest specialists at the new regional clinics and hospitals. In so far as the tuberculosis officer will be considered a chest specialist, and presumably have more hospital beds and clinical facilities, this change is to the good. But if at the same time he is not to have complete charge of the tuberculous patient, more will be lost than gained. When one inquires about the environmental aspects of the tuberculous patient's care, the control of his home surroundings, and his rehabilitation towards normal life, these are found to come under the local health authority. Further, industrial re-employment is the concern of the Ministry of Labour. To make a fourth branch of this inconvenient division of the tuberculosis patient's interests, we have the unwelcome news that the treatment allowances (266/T) are to be abolished. It would seem that the tuberculosis service of Great Britain, which led the way in 1912 and still leads the world, is to be broken up into fragments. This view is expressed in an article in the June issue of the *N.A.P.T. Bulletin* entitled "Disintegration"; it is also the opinion of Dr. Frank Ridehalgh, tuberculosis officer for the City of Leeds, writing in the *Times* on June 11, of the Joint Tuberculosis Council, and of a large number of tuberculosis officers. Mr. Bevan has promised or threatened a third Bill—additional to the Health Service and National Insurance Bills—to deal with Poor Law and to clear up remnants of socio-medical legislation, and until this new measure emerges the social welfare of the tuberculosis patient is not provided for. If these deductions from the text of the Health Service Bill are incorrect, would it not be well for the Minister to show what he has in mind for the tuberculosis service of the country?

MATAS OPERATION FOR TRAUMATIC ANEURYSM

"The report of the first patient treated by endo-aneurysmorrhaphy was made by Dr. Rudolf Matas in the *Philadelphia Medical News*, October 27, 1888. In the 57 years which have intervened since that memorable publication no alterations in the technique of the procedure other than minor niceties have been made. Few operations have stood this test of time, and none has had a more profound effect upon the surgery of blood vessels." Thus Elkin[1] begins an account of 106 false aneurysms treated by operation during thirty months; in 61 the Matas procedure was employed. There were no deaths, no recurrences, and no instance of gangrene.

Elkin's warm advocacy of the method stresses its simplicity; his results indicate its effectiveness. The problem that confronts the surgeon in these cases is well shown by the account of Matas's original case. A young negro had a large traumatic aneurysm of the brachial artery, which had recurred after combined proximal and distal ligation of the main artery. When Matas exposed it at operation he found that the branches of the brachial plexus were so firmly incorporated in its walls that excision was impracticable. Exploration of the interior of the sac revealed three large orifices, corresponding to collateral branches, which had clearly caused the recurrence. Matas realized that the easiest way out of the difficulty was to seal the orifices of these collaterals by suture. This was done with ease and with success. As Elkin states, the Matas endo-aneurysmorrhaphy is simple in conception, and if the principles of its application are borne in mind it is easy to carry out. The seven cases he selects to illustrate his experiences are examples of difficult, and even terrifying, large traumatic aneurysms in the most awkward places.

Before the introduction of the Matas procedure aneurysms were treated by a variety of methods, most of them unsuccessful. Antyllus, a fourth-century surgeon, ligated the vessel above and below the sac, the contents of which were evacuated before applying an astringent or packing; this operation was performed right up to the eighteenth century. In 1710 Anel suggested ligation of the proximal artery close to the sac, but it was chiefly due to the introduction by John Hunter of proximal ligation at a distance from the sac, in order to lessen the risk of gangrene, that the operation of Antyllus was abandoned. The Hunterian ligation was often successful. Its success has been marred, however, by frequent recurrences, the sac being fed through the collateral channels Hunter was so anxious to preserve. Even to-day, with proximal and distal ligation combined with excision of the sac as the method of choice, the simplicity and effectiveness of the Matas operation is quite inadequately appreciated. In those cases with a huge, diffuse, and widely adherent false aneurysmal sac, resulting from gunshot wounds, excision of the sac is always difficult and often dangerous or impossible. It is, therefore, important that the principle of the Matas operation should be widely known and appreciated.

[1] *Surg. Gynec. Obstet.*, 1946, **82**, 1.

MEDICAL FILM COMMITTEE

The Council of the British Medical Association has set up a committee to inquire into the scope and use of films in postgraduate and undergraduate medical education. Under the chairmanship of Sir Lionel Whitby the committee is composed of the following members: Lord Amulree, Mr. V. Zachary Cope, Dr. A. E. Barclay, Dr. J. A. L. Vaughan Jones, Dr. R. P. St. L. Liston, Dr. B. G. Maegraith, Dr. R. C. MacKeith, Mr. R. L. Newell, Mr. H. Reid, Dr. C. M. Seward, Prof. J. C. Spence, Mr. A. Dickson Wright, and Mr. R. L. Pryer and Mr. S. A. Biggart appointed by the British Medical Students' Association. One of the first tasks of the committee will be to survey the different techniques in which films are employed in other spheres of education. The film was used extensively in Naval, Army, and Air Force training during the war, and the experience in these fields should prove most valuable. The committee will consider how far the lessons learnt can be applied to medicine. Problems of production, distribution, cataloguing, and projection will all have to be studied. It is clear that a vast field for valuable work is opening up.

The Hugh Owen Thomas Memorial Lecture will be delivered by Mr. George Perkins, President of the British Orthopaedic Association, at the Liverpool Medical Institution (114, Mount Pleasant, Liverpool) on Thursday, July 11, at 4 p.m. His subject is "Bone Grafting."

POWERS AND PROCEDURE OF THE GENERAL MEDICAL COUNCIL

A memorandum on Proposed Variation of the Powers and Procedure of the General Medical Council has been drawn up by the Medical Defence Union, Ltd., the London and Counties Medical Protection Society, Ltd., and the Medical and Dental Defence Union of Scotland, Ltd.

Proposals for Reform

The Councils of the three defence bodies are of opinion that the existing powers and procedure of the G.M.C. require strengthening and amendment to bring them into alignment with modern practice in criminal courts and courts-martial regulated by rules of procedure similar to those of the Disciplinary Committee of the Law Society. Having posed certain questions to and received the opinion of counsel, the societies submit the following decisions for the consideration of the G.M.C., believing that their adoption would redound to the benefit of all concerned.

That the General Medical Council be empowered and required to establish two distinct and separate committees to be known as (*a*) the Penal Cases Committee and (*b*) the Disciplinary Tribunal. That a member of the Penal Cases Committee be not eligible to sit as a member of the Disciplinary Tribunal to hear a case that has already been before him as a member of the former committee.

That the Disciplinary Tribunal, sitting with a legal assessor, consist of 7 members drawn from a panel of 12 members elected by and from the G.M.C.; that its quorum consist of 5 members, and that it be vested with the full disciplinary and judicial powers of the G.M.C. That complaints received by the G.M.C. be examined in the first instance by the Penal Cases Committee to determine whether a prima facie case exists for reference to the Disciplinary Tribunal for determination.

That the General Medical Council be incompetent to present any case in which a Government Department or a constituent body is the complainant, and that the burden of the presentation of any complaint be undertaken only when the Council is satisfied that justice would be denied in the absence of its intervention. That the initial complaint in all cases, including information laid by a Government Department, be supported by an affidavit or affidavits setting out all material facts. That a copy of the affidavit or affidavits be furnished to the respondent with any request addressed to him to provide a reply and explanation. That the respondent be given not less than four weeks' notice of any inquiry to be held by the Disciplinary Tribunal with discretionary power vesting in the President to extend the time on the receipt of an application to this effect.

That the attendance of witnesses and the production of documents before the Disciplinary Tribunal be enforceable by subpoena. That all evidence before the tribunal be given orally on oath save for good and sufficient reason, except evidence as to character, which may be given in writing. That each party furnish to the other not later than 10 days before the hearing of the case a list of the documents on which they propose to rely. That notice to produce and admit be not permitted.

That the Evidence Act, 1938, be not made applicable to the proceedings of the Disciplinary Tribunal. That the parties be entitled to require the tribunal to subpoena any deponent to an affidavit to give oral evidence. That only those documents which are agreed by the parties and such others as are proved in evidence be placed before the tribunal.

That a summing up by the legal assessor be not required unless it is requested by the Disciplinary Tribunal or one of the parties when in the opinion of that party a point of law is involved. That if and when the legal assessor sums up, he be obliged to do so in the presence of the parties. That the legal assessor be a barrister or a solicitor experienced in the practice of the Courts of Common Law and of not less than 10 years' standing.

That provision be made for a right of appeal to the High Court by the respondent on points of law only. That in the event of an appeal any order for erasure be suspended until after the disposal of the appeal, subject to the appeal being entered within 7 days from the date of the order.

That the Disciplinary Tribunal be empowered (in addition to the present penalty of erasure) to administer other penalties short of erasure—viz., suspension for varying periods or censure of differing degrees. That the tribunal be empowered to award costs against a complainant or respondent and that machinery be established for taxing the costs.

That the General Medical Council be given the power, but not the exclusive power, to conduct prosecutions for infringements of the Medical Act, 1858.

That the words "professional misconduct" be substituted for the words "infamous conduct in a professional respect" and used in the same connexion.

That the rules of procedure relating to penal inquiries be not subject to the approval of a judicial authority.

That the appropriate provision of the Medical Act be amended to permit of the imposition of a maximum penalty of £500 and the alternative of a term of imprisonment for persons convicted of falsely holding themselves out to be registered medical practitioners.

That addition be made to the present protected designations appearing in Section 40 of the Medical Act to embrace abbreviation of recognized medical qualifications, the courtesy title of "Dr." when associated with the healing art, and any other description in common use that is accepted by the public and the profession as indicating that the user is a registered medical practitioner.

SOCIAL SURVEY OF DIPHTHERIA IMMUNIZATON

Diphtheria immunization was recently the subject of an investigation made by the Social Survey for the Ministry of Health. In the course of the inquiry over 2,000 mothers were interviewed. They were a representative sample of mothers of children aged under 16 in England and Wales. The results of the inquiry are given in a report bearing the name of Kathleen Box and issued by the Ministry of Health. (New Series, No. 69.) Among points made are the following:

The Ministry's publicity campaign has had widespread success in persuading parents to have their children immunized, and in bringing to their notice the free immunization scheme. Of the mothers interviewed 81% with one or more children who had passed the first birthday had had at least one child immunized; 84% of the immunized children had been immunized under the local authorities' free scheme, the remaining 16% by private doctors. The two peak ages for immunization were at about the first and fifth birthdays. Of the immunized children 34% were immunized at the suggestion of the school, 19% at the suggestion of a welfare clinic, and 6% and 5% at the suggestion of health visitors and doctors respectively. Of the mothers interviewed 35% had had their children immunized on their own initiative, as a result of hearing about immunization from publicity. Immunization posters had been noticed by 87% of the mothers interviewed, newspaper or magazine publicity by 75%, radio publicity by 50%, and cinema publicity by 40%.

There was no considerable difference between the proportions of immunized children in towns and in rural districts; the proportion was rather lower in the North than in the South. Mothers in the higher education and income groups were slightly ahead of those in the lower groups in having their children immunized. Among interviewed mothers who had not had their children immunized, only 15% said that they did not believe in it. Resistance to immunization came from another 26% on various other grounds, such as that the husband objected, or that the mother feared the child would be hurt or frightened. The largest group of unimmunized children (35% of the total) was accounted for by apathy and ignorance on the part of the mother.

MEDICAL BIRTHDAY HONOURS

A further list of Birthday Honours was published in a *Supplement* to the *London Gazette* on June 24, and included the names of the following members of the medical profession.

O.B.E. (Civil Division)

ARCHIBALD BUCHANAN BARBOUR, M.R.C.S., L.R.C.P., A.F.R.Ae.S., lately Commander and Chief Medical Officer, Air Transport Auxiliary.

JOHN CONSTABLE BROOM, M.D., Acting Director of the Laboratory of Tropical Medicine, Wellcome Research Institution.

Mrs. EVA COTCHING, M.B.E., M.D., lately Deputy Director, Iraq, Soldiers', Sailors', and Airmen's Families Association, Paiforce.

Surg. Capt. ARCHIBALD FAIRLEY, M.B., Ch.B., R.N.(ret.), Principal Scientific Officer, Chemical Defence Experimental Station, Ministry of Supply.

GEORGE FOGGIN, L.R.C.P.&S.Ed., Principal School Medical Officer, Newcastle-upon-Tyne.

FREDERICK JAMES SIMKIN HALL, M.B., B.S., F.R.C.S.Ed. For services to ships lying off Deal, in the Downs.

ENEAS KENNETH MACKENZIE, M.D., J.P., Chairman, Ross and Cromarty Insurance Committee.

HUBERT TURNER PENN YOUNG, M.B., Ch.B., Medical Officer, H.M. Prison, Wormwood Scrubs.

M.B.E. (Civil Division)

ERIC WILLIAM BINTCLIFFE, M.S., F.R.C.S., Senior Surgeon, Ronkswood Hospital, Worcester, Ministry of Pensions.

Mrs. R. C. LANCASTER (Miss RUTH DARBY), M.B., Ch.B. In charge of the Military Families Hospital, Rumwood Court, Langley.

ROBERT CATHERWOOD WALLACE, M.B., Ch.B., Admiralty Surgeon and Agent and Medical Officer, R.N. Armament Depot, Crombie.

MACKENZIE INDUSTRIAL HEALTH LECTURE

Dr. Donald Hunter, F.R.C.P., will deliver the Mackenzie Industrial Health Lecture at B.M.A. House on Wednesday, July 24, at 5.45 p.m. The title of the lecture is "Academic Aspects of Industrial Medicine," and admission is by ticket only. The lecture will be confined to persons, lay and medical, who are professionally interested in industrial medicine. Tickets of admission can be obtained from the Secretary, B.M.A. House, Tavistock Square, W.C.1, and early application is requested as the number is limited.

CONSULTANT PAEDIATRICIANS

We print below an abridged version of a document on the appointment of a consultant paediatrician which has been drawn up by the British Paediatric Association, partly as a result of requests from various centres. Copies of the full text may be had from the secretary of the B.P.A., Hospital for Sick Children, Great Ormond Street, London, W.C.1. The suggestions are intended to help centres, other than the main undergraduate teaching schools, where such an appointment is under consideration.

Qualifications for Appointment

A consultant paediatrician should have received his or her paediatric training at an approved children's hospital or children's department of a hospital, and have a minimum of five years' training and experience after qualification. One, preferably the first, year of this period should be spent in an appointment or appointments in adult medicine or surgery. Three years should be devoted to paediatrics, using this term in its widest sense to include all medical work among healthy and sick children, and one year should have been spent working at some allied subject. He should be a Member or Fellow of one of the Royal Colleges of Physicians or hold an approved higher degree in general medicine; the D.C.H. is not essential. He should not engage in general practice.

Standards of Remuneration

These should be based on the assumption that no considerable measure of private practice will be available. In determining standards for a consultant paediatrician, whether part- or whole-time, his services should be valued in the light of the work done and responsibilities assumed, bearing in mind that the care of children involves great responsibility. Travelling expenses in connexion with his work, adequate secretarial and office assistance, and time off to attend meetings of learned societies should be provided.

In his hospital work he should have adequate medical assistance of the type of medical registrars and house-physicians, and these must be taken into account when assessing the requirements and cost of the department. So that the best nursing services may be available the senior nursing staff in the children's department should hold the sick children's nurse's certificate.

Duties of the Consultant

He should have general charge of the children's department of the local hospital; act as consultant to the local hospital for infectious diseases; be responsible for care of the newborn in the local maternity department; be available as a consultant for long-stay country hospitals, convalescent homes, and residential schools for defective children; act as a consultant to the School Health Service, the local welfare clinics, the Tuberculosis Service as applied to children, and any other service for children for which the local authority is responsible; be available for domiciliary consultations, as determined by the new Health Bill; and undertake teaching duties for house-physicians, nurses, midwives, health visitors, etc., in close association with the local university department of child health.

The consultant paediatrician should be jointly appointed by the appropriate hospital board and local authority, in consultation with the university of the region, and it would be an advantage to have some external assessors. The emoluments and conditions of work should be made attractive in order that those of high standing may be led to apply.

The report for 1945 of the Kashmir Medical Mission of the Church Missionary Society has been published from Mysore City. Shortage of staff influenced the output of work both in quantity and quality. Dr. Cecil Vosper left for England in June after 33 years of faithful service on the Frontier and in Kashmir, and a tribute to his work and character is paid in the report. One regrettable result of the war has been the impossibility of maintaining adequate repairs and renewals owing to the prohibitive cost, and much new equipment will also be required. The Mission Hospital at Srinagar looks forward to brighter times when full and efficient staffs are again the order of the day. The general survey is signed with the initials of the Rev. K. W. MacKenzie, M.B., superintendent, and hon. treasurer and secretary.

Reports of Societies

NUTRITIONAL EXPERIENCES IN P.O.W. CAMPS

A conference of the Nutrition Society on May 18, at the London School of Hygiene and Tropical Medicine, discussed nutritional experiences in prisoner-of-war and internment camps in the Far East.

Dr. P. S. SELWYN-CLARKE, Director of Medical Services, Hong Kong, who acted as chairman, said that during the war the wise guidance of Sir Edward Mellanby and others had prevented malnutrition in Great Britain. Dr. Magee had produced evidence that the children, at least, were better nourished than before the war. The situation in other parts of the world, however, was much less satisfactory. Rapidly increasing populations had to subsist on the products of cultivated areas which dwindled as the result of soil erosion. As a result bad harvests, combined with shortage of shipping, had led to the present crisis, in which death by starvation threatened about 150 million people. It was therefore essential to have expert advice on how best to use available food supplies. Nutritional Research Committees had already been established in many colonies, and he was authorized to announce that a control Colonial Nutrition Research Committee would shortly be set up to advise the Colonial Secretary.

Deficiency diseases appearing in prison camps might presumably be taken as a rough index of those likely to occur in the population of the surrounding territory. The present meeting, therefore, might well be regarded as a regional conference on general nutritional problems in the South-West Pacific area. Undoubtedly, however, complications in the interpretation of data arose from the special conditions of life in individual camps. Thus, great variations existed in regard to climate, hygiene, housing, clothing, and water supplies, and in the facilities for sanitation, washing, cooking, and recreation.

He had been impressed by the number of syndromes, presumably of nutritional origin, which bore a distinct resemblance, although incomplete, to conditions met with in general medicine. Thus in a camp on the Kowloon Peninsula he had observed several cases which might have been diagnosed as Paterson's syndrome, but in which koilonychia and hypochromic anaemia were absent. In Hong Kong Major Harrison saw several cases of a syndrome resembling subacute combined degeneration of the cord, but without extensor plantar response. Several minor points presented interesting problems. It was difficult to understand why young women should digest rice much better than young men. An explanation had still to be found for the violet hallucinations which troubled sufferers from the amblyopia which appeared as a complication to frank vitamin B_1 deficiency when they attempted to read.

Formosa P.O.W. Camps

Lieut.-Col. J. BENNET, R.A.M.C., said that in prisoner-of-war camps in Formosa it was difficult to decide to what extent the incidence of deficiency diseases could be attributed to the somewhat defective diet. Environmental stress, compulsory hard labour, a high incidence of malaria and other infectious diseases, combined often with the after-effects of transport by sea under appalling conditions, all contributed to a highly complex picture of ill-health. A diet consisting mainly of unpolished rice was freely eaten by men who had a deep elemental fear of starvation. Large amounts of vegetables of poor nutritive quality and coarse texture were also consumed. The resulting intestinal irritation caused diarrhoea, which undermined health and led to a high incidence of nutritional oedema.

In some camps the prevailing oedema was classified as beriberi, but this diagnosis disregarded the outstanding features, which were its soft pitting character and the effect of posture in determining its distribution. Some indication of vitamin B_1 deficiency, however, was given by the occurrence of neuritis in the later years of captivity, although the features were not those usually found in beriberi. The bones and joints ached severely, and there were cramping sensations in the feet. Often the nerve cords were thickened and tender. Retrobulbar neuropathy was another common abnormality. The complete picture of the sprue syndrome was rare, although some cases with

diarrhoea showed early changes in the tongue. Large blood-blisters sometimes formed in the mouth, even in men who were apparently fit.

Prisoners who were expected to work received about 2,500 to 3,000 calories daily, but when officers were excused work their intake was reduced to 1,770 calories. It seemed probable that the diet would have maintained a reasonable state of health in the absence of "conditioning" factors, such as overwork, infection, and diarrhoea.

Interned Civilians in Hong Kong

Dr. D. A. SMITH described conditions in a civilian internment camp in Hong Kong which housed about 1,300 men, 900 women, and 300 children. The main foodstuff was highly milled white rice, of poor quality, and usually infested with weevils. The ration allowed by the Japanese also included water-buffalo beef in 1942, but this was later replaced by fish, which during the last two years was salted and supplied only every other month. A little arachis oil and some salt were allowed. Chinese cabbage, water spinach, chrysanthemum and sweet potato tops, and gourds were the main vegetables. The diet was calculated to be low in all nutrients except carotene, vitamin C, and iron. Some food was fortunately obtained from other sources, and included beans, wheat bran, and rice polishings purchased from the local Red Cross organization, occasional International Red Cross parcels, and the produce of camp gardens.

The first effect of poor diet was loss in weight. After the first few months the body seemed to adjust itself to the new plane of nutrition. A lowered metabolic rate was accompanied by bradycardia, hypotension, weakness, undue liability to fatigue, dizziness, and fainting. About 90 days after capture wet beriberi first appeared, and throughout the whole period 844 cases occurred. The condition could readily be cured with crystalline aneurin, preferably given by injection. Although the incidence of beriberi rose in warm weather, the main factor in deciding its incidence was the amount of vitamin B_1 in the diet at different periods. A high incidence could be expected when the daily intake fell below 0.25 mg. per 1,000 non-fat calories. At about the same time numerous cases of oedema were noticed which were not associated with neuritis. This condition did not respond to aneurin, and was presumably due to protein deficiency. Features of pellagra, usually including glossitis and blood-blisters in the buccal mucosa, were found in 557 cases, but the typical brown pigmentation was seldom observed. An "ora-genital syndrome," with angular stomatitis and genital dermatitis as its main characteristics, was frequently encountered, and was ascribed to deficiency of riboflavin. There were 55 cases of tropical macrocytic anaemia. Other lesions were retrobulbar neuropathy, which failed to respond to such dietary treatment as was available in the camp; and "electric feet," which were not cured by aneurin but improved gradually when beans, wheat bran, and rice polishings were given.

Internees at Singapore

Prof. R. G. SCOTT MACGREGOR recounted his experiences in the civilian camp at Singapore. At Changi prison 3,000 internees were at first housed in accommodation designed for 600, but in 1944 the camp was moved to primitive huts on the Sime road. The Japanese allowed the camp to look after its own internal organization, and a Medical Reference Committee was formed which met at weekly intervals for three years to take care of nutritional matters. The diet allowed by the Japanese was much the same as in Hong Kong, but the rice was often unpolished. Red Cross facilities were not freely allowed, but the committee was able to arrange for the purchase of supplementary foodstuffs, such as rice polishings, ground nuts, and green dhall, through a neutral agent. The diet provided 2,000 calories daily for healthy men, with less for invalids. Women and children received only about 1,000 calories. In order to avert the ill effects of periods during which the food supplied by the Japanese was worse than usual the committee showed great resource in the provision and issue of supplements. Thus red-palm oil was distributed during the early months when lack of vegetables brought danger of deficiency of vitamin A. During periods when the Japanese were supplying unpolished rice improvised drying plant was put into service. This allowed the storage of rice polishings in stable form so that they might be issued when beriberi was threatened through a change of the ration to polished rice. A procedure was even devised for the extraction of salt from sea water at times when the salt ration was low, but the injudicious use of salt sometimes increased the tendency to oedema.

Probably as a result of the committee's careful planning, the incidence of deficiency diseases was comparatively light. Although the average age of the internees was 44, the mortality was under 10%. Nevertheless, losses of 2 st. (12.7 kg.) in weight, and 1/2 to 1 in. (1.25 to 2.5 cm.) in height, were common. Only 30 cases of beriberi occurred in the early stages of internment, and there were no further cases except for a few in 1945. There was an outbreak of retrobulbar neuropathy in 1943, and of pellagra in 1944.

Drs. R. C. BURGESS and E. K. CRUICKSHANK both spoke about malnutrition in the military camp at Singapore. Although the calorie intake was reasonably adequate, there was, as in other camps, a serious deficiency of protein and of vitamins of the B complex. The incidence of beriberi, which could clearly be correlated with periods when the vitamin B_1 intake was low, rose to a high level two months after capture in 1942, but was very low when an improved diet was received during 1943. Later, however, deterioration of food supplies caused a steady rise in incidence to a peak in 1945. To keep the vitamin B_1 intake as high as possible steps were taken to ensure that losses involved in washing and cooking rice should be minimized. At one time yeast was grown as a source of vitamin B_1, but the specimens obtained proved to be of little value. The incidence of conditions due to deficiency of the vitamin B_2 complex, including mouth lesions, aching feet, and scrotal dermatitis, were parallel with low levels in the riboflavin intake, but apparently not related to the estimated nicotinic acid level. The incidence of keratitis followed most other deficiency conditions fairly closely, but retrobulbar neuritis was slow in appearing.

Prevention of lesions due to deficiency of the vitamin B_2 complex was effected by increasing the intake of green vegetables to about 180 g. per day. Protein deficiency remained severe, as indicated by the very low serum value of 4.7% estimated immediately after liberation. One of the most distressing effects of malnutrition, however, was undoubtedly aching feet, which kept the sufferers awake at night. Some tried to find relief by an endless walk round their sleeping-quarters. Others wore several pairs of socks, or knelt in a bent-up attitude, squeezing their feet with their hands.

Effects on Women and Children

Miss E. M. M. HUME read a paper contributed by Dr. CICELY WILLIAMS which dealt with the nutritional conditions among women and children interned in Singapore. After the capitulation a motley group, made up of professional women, nurses, and the wives of British civilians or prisoners of war, some European, some native, and some Eurasian, was paraded all day in the sun at the centre of the town, before being marched 6 miles (9.6 km.) to houses in Katong. Here they were kept for three weeks, with little food and no sanitation, before transfer to Changi prison. Although the women were kept in quarters separate from the men, information and food were exchanged, and the women had the benefit of advice from the Medical Reference Committee. On the whole the women, with their lower metabolic rate, withstood dietary deprivation better than men, but there was great individual variation. Some native women, accustomed to rice, actually put on weight during the first stages of internment. The coarse bulky nature of the diet, however, gave some Europeans diarrhoea. Apart from a few cases of frank deficiency diseases, the main physical disabilities were giddiness, cessation of menstruation, and nocturnal diuresis. Hunger was not only distressing as a sensation but was generally accompanied by feelings of insecurity and anxiety, and longings for rich food. In the early months the nights were perpetually disturbed by overcrowding, crying babies, prowling sentries, women having nightmares, quarrels among cell mates, and by attacks of enteritis, indigestion, and anxieties. All these factors tended to settle with familiarity and conditioning, but even when fluids were avoided during the latter part of the day the nocturnal diuresis persisted, in most cases until some weeks after liberation. The children were undersized, but most of them were otherwise normal. It

is highly satisfactory that in 300 children, including 20 babies born in the camp, only 2 deaths occurred, and these were in babies sick before internment.

Dr. J. V. LANDOR discussed the pathology of the conditions occurring in prison camps. He mentioned in particular the occurrence of purplish areas, often following injury, which he ascribed to infection with diphtheria bacilli.

Dr. SELWYN CLARKE, in thanking the authors for their contributions, emphasized the great importance of the information which they had made available. It was most desirable that all the data should be published in adequate detail, and there seemed to be ample material for a further conference on the same subject.

Correspondence

Reduction in Rationed Foods

SIR,—The Executive Committee of the Guildford Division has instructed me to write you upon the question of further reduction in rationed foodstuffs.

It was strongly held that the Government should have before it solemn warning from actively practising members of the profession that the state of the national health, so far from being better than ever, is only fortuitously being maintained; that the war weariness and fall in production in essential heavy industries is a better index of adequacy of nourishment of the country as a whole than are Governmentally collected statistics. It was held that the country had been most fortunate to have escaped a major epidemic so far, and that the cuts in protective foods and first-class proteins were likely to lead to a serious diminution of the mass resistance to epidemic disease.

We wish to record our whole-hearted disagreement with the predicted "cuts," in particular, in regard to fats and meat rations. We would strongly urge the necessity of obtaining at any cost a more adequate supply of these essential commodities, and then we are strongly of the view that both resistance to disease and the will to work hard for national recovery would be materially increased.—I am, etc.,

West Byfleet. DAVID HALER, Hon. Sec., Guildford Division.

Migrainous, Ciliary, and Post-traumatic Headaches

SIR,—Mr. Cecil Tivy (June 22, p. 964) refers to my article (May 18, p. 754) as being open to severe criticism from at least one point of view, and he goes on to say that I talk lightheartedly of the loss of corneal reflex after my injections. I find I made two references to the corneal reflex, the first when I described the effect of a small injection, leaving loss of sharpness to pinprick and loss of the corneal reflex, or even complete analgesia (p. 755). Mr. Tivy apparently does not distinguish between analgesia and complete anaesthesia, for he continues that I surely must be aware that the correct description would be "complete loss of corneal sensation, with its attendant loss of trophic nerve supply." For his information I may say that analgesia means loss of sharpness, and complete anaesthesia means not only loss to pain but to touch and pressure. I referred to diminished corneal reflex, with light analgesia of the ophthalmic and maxillary divisions, in Case 3, a public schoolboy, whom I injected with only 3 mins. (0.18 ml.) of alcohol. If this is being light-hearted I will not quarrel with the term.

I never touch the cornea if I can help it; the ciliary reflex is usually sufficient, but a better test for comparison of the two sides is to prick lightly the inner canthus with a pin; this seems to me to be the most sensitive part of the face. The after-care of the cornea is most important when the ophthalmic division is anaesthetic, but in the very large majority, if the patients carry out my instructions to instil a drop of liquid paraffin three times daily, and wear a shaped "celloidin" shade, made specially for me by Solport Bros., during the daytime for three weeks, only a few give trouble. It is the eyes with chronic conjunctival catarrh which are most likely to go wrong; quite certainly if trachoma is present. Even then, atropine and eyebaths and careful fomentations, with rest in bed, may avert tarsorrhaphy. Over 20 years ago, when discussing the incidence of keratitis with Harvey Cushing, when he came to see me do a ganglion injection at Maida Vale, he agreed with me that eyes varied very much in their reaction, that some kept normal even if no care were taken, yet others in spite of careful treatment might develop keratitis.

A point I am always careful to inquire into is the vision of the eye on the non-affected side, for should that be useless, not more than 3 mins. alcohol should be used within the ganglion, and then only in cases of extreme severity of pain affecting the ophthalmic division.

As regards follow-up of cases, which Mr. Tivy suggests I omit, he can scarcely have read my article carefully, and I may add that I have had in addition many scores of letters sent spontaneously from grateful patients, often many years after treatment. He says he is all too well aware of the number of people who suffer from intractable headaches, and of the amount of misery they suffer, and yet he expresses grave doubts whether a Gasserian operation is justifiable.—I am, etc.,

London, W.1 WILFRED HARRIS.

Lumbo-sacral Root Pain

SIR,—Analysis of the article by Dr. J. MacD. Holmes and Mr. B. R. Sworn (June 22, p. 946) leaves me confused as to the need and results of their operative measures and methods employed. They state: "We have therefore made a complete clinical and radiological examination of all our patients with sciatica, including lumbar puncture with manometry and examination of the cerebrospinal fluid. . . . If operation has seemed necessary . . . myelography has been carried out and operation has been performed" if myelography has been positive and in some cases even if negative. Of the 50 cases operated upon "in which we had made a confident diagnosis of a lesion," no lesion was found in 10 (20%), but "a considerable measure of relief followed operation" in spite of this. They suggest conservatism in their methods by the statement, "Laminectomy may be necessary for extensive lesions, but in most cases of disk rupture we have used the interlaminar approach, usually combined with removal of the lower border of the upper lamina," yet in the history of the only case which they cite they state "the fourth and fifth lumbar laminae were removed" and still no lesion was found. With such surgical trauma I find it difficult to believe, "at least a considerable measure of relief followed operation—in spite of the fact that in some of them we had found no visible lesion" and "in the cases with negative myelograms no appreciable relief followed operation, but no patient was worse."

Inman and Saunders (*Radiology*, June, 1942, p. 669) have recorded: "It is disappointing, however, in spite of initial brilliant post-operative results, to find a certain proportion of cases presenting a residual of painful symptoms." They emphasize a similar injury to the ligaments around the interpeduncular foramen which is not modified by removal of the disk remnants, and in support of this they quote that the State Corporation Fund of California reports "compensable disability in 100% of patients operated upon for disk injuries." A. Oppenheimer (*New Engl. J. Med.*, Jan. 27, 1944, p. 95), reporting on a study of 826 cases, states, "Most of the clinical manifestations are caused by those secondary alterations rather than the primary disk lesion. Even rupture of the disk is not an invariable exception to this rule." It has been proved by more than one observer that positive myelography may not be supported by operative findings, yet negative myelography is by no means infallible. Neither it nor laminectomy are without the risk of serious damage to the patient.

Presumably most of this work of Holmes and Sworn has been done within a relatively short time. But my experience is that patients who have suffered damage to a disk, even by needling, may not yield any radiographic evidence of it for many months, and some do not develop symptoms sufficiently severe to cause them to seek surgical attention for five, ten, or more years, and at this time radiographs show definite evidence, such as diminution of the intervertebral disk space and splaying out of the approximated bony surfaces. The number of patients who show radiographic evidence of damage to disks is small compared with the number who show reactive changes in the borders of the vertebral bodies and articular facets. An

analysis of the radiographic indications of many other causes for these symptoms has been recorded (Brailsford, *Brit. J. Radiol.*, October, 1944, p. 308).

One has witnessed a considerable display of fashion in the alleged cause for low back pain. Disk lesions are now at the crest of the wave. Jefferson (*Med. Ann.*, 1944, p. 171) has stated, "There are few to-day who deny that the most common cause of sciatica is rupture of the intervertebral disk," but the adoption of operative measures for its relief one hoped was on the wane. I cannot help but think that many were undertaken without adequate study of the normal and its infinite variations, and I appreciate the candour of Holmes and Sworn who state, "Two cases had what we thought was some thickening of the ligamentum flavum, *but this may have been within normal limits.*" Such expressions direct us to their more helpful statement: "There is no doubt that most cases of 'sciatica' will clear up spontaneously, or can be cured or relieved by relatively simple measures without resort to surgery."—I am, etc.,

Birmingham. JAMES F. BRAILSFORD.

Blindness in Nigeria

SIR,—Dr. J. Graham Scott in his letter on this subject (June 22, p. 964) confuses the issue, for he does not seem to appreciate that the flora and fauna, the dietary habits of the natives, and the prevalent diseases vary with the climatic conditions. Nigeria is a very large territory; the south is in the tropical rain forest belt, while the north, where the census in question was held, is at the edge of the Sahara. His statements are more nearly correct in the south and central zones, but in Bornu, in the extreme north-east of the colony, his statements do not apply at all. In the original article I was careful to point out that the figures given related to this area only. They must not in any circumstances be applied to any other area in the colony or in West Africa generally.

The following specific points are raised by Dr. Scott's letter.

(*a*) Ophthalmia neonatorum was common and was seen frequently in the out-patient department of the hospital and at the infant welfare clinic.

(*b*) The native of Bornu does not like red-palm oil. The oil palm is not indigenous in this area and any oil imported into the province has to be brought first by rail to the railhead and then almost 400 miles (650 km.) by road. This makes the price prohibitive for the general population, and it is only consumed by the relatively well-paid Government and commercial clerks, who are usually southerners and for whom the oil is a normal article of diet.

(*c*) One is taught that trachoma is an endemic and epidemic disease and that its spread is facilitated by insanitary conditions and poor nutrition. If it were present in these large native towns it should spread like wildfire. In fact, however, very few cases are reported annually from the hospitals in the most northerly provinces in Nigeria. The diagnosis of the disease is not difficult even to one not specially trained in ophthalmology, and I can only suggest that it is not so prevalent as Dr. Scott would make out.

(*d*) Onchocerciasis is very common in some areas in Nigeria, particularly in the southern provinces, and the statement by Dr. Scott that 50% of the population is infected may be correct in these areas. The climate of Bornu, however, is unfavourable for the vector, *Simulium damnosum*, and where the vector cannot breed easily the disease cannot exist to any large extent.

—I am, etc.,

Leeds FRANCIS E. STOCK.

"Tropical" Eosinophilia

SIR,—You state (June 8, p. 884) that Loeffler's syndrome differs from the tropical eosinophilia "in that it occurs in dry and temperate climates." This is not correct. Loeffler's syndrome was described by myself simultaneously with Loeffler in 1932 in Shanghai, which has an extremely humid, tropical climate during the summer months.

In my first publication I named the so-called Loeffler's syndrome "allergic spring oedema of the lungs." I then suspected that a pollen may be the responsible allergen. This supposition was based on the fact that certain people developed signs of lung oedema every spring, approximately at the same time. My first observation was made on myself. I further called attention to the fact that Loeffler's cases also showed a seasonal incidence with a distinct summer peak. This was since admitted by Loeffler and confirmed by others. I also denied any connexion between my syndrome and tuberculosis, then suspected by Loeffler. I had no opportunity to follow up my observations in the Tropics, but it might be of significance, and in support of the pollen theory, that since I came to Britain in 1936 I have had no attack of spring oedema though I was subject to it in Shanghai every May or June for several years.

Since my publication two other observations of similar nature were made, one in China, the other in Japan. Case 4 of M. H. Chien and T. P. Wu most probably belongs to this group. They mention also that during spring of each year they see patients suffering from "cold" with cough and malaise and sometimes slight fever. They are generally treated as out-patients. Some are admitted to hospital for some surgical condition, and *x*-ray examination of their lungs shows patches of soft infiltrations which are usually absorbed completely in a short time. The sputum, when present, is scanty and contains no tubercle bacilli. Chien and Wu could not know then of the existence of my syndrome, which was published in the same issue of the *Chinese Medical Journal* as their paper. The case observed in Japan was published by I. Hatakeyama, who called it "temporary infiltration of the lung caused by high-grade tuberculous allergy." The assumption of tuberculosis was based on a positive tuberculin test. This, in a boy of 15 years, especially in Japan, is very unconvincing. The patient showed slight clinical symptoms but a very extensive and dense shadow of the upper lobe which disappeared in two weeks. The patient had eosinophilia. This, in my opinion, is a typical case of my syndrome.

I have no experience with the tropical eosinophilia of Weingarten, but from his description it appears to me that his disease is of a more serious nature, inasmuch as it causes the patient much more inconvenience and lasts longer, while my syndrome is often detected only by chance and usually does not cause any serious symptoms. The *x*-ray findings of the two syndromes also differ. It is possible, however, that different allergens cause different reactions in the lung, as shown in bagassosis, in which the allergen is melasse.—I am, etc.,

Dewsbury. D. ENGEL.

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What is Clinical Pathology?

SIR,—In so far as any distinction can be drawn between "clinical pathology" and other aspects of pathology, it would presumably be the distinction between laboratory investigations applied to diagnosis and control of treatment in individual patients and investigations directed to the elucidation of the fundamental problems of the science. The distinction is certainly not between the simpler and the more specialized techniques, and I entirely agree with Dr. A. C. Lendrum's emphasis (June 1, p. 848) on this point. Every pathologist, whatever his special branch, is acting as a clinical pathologist when he is concerned with individual diagnosis. It would be most undesirable if the distinction between work required for the immediate service of patients and work on fundamental questions should be made the basis of a separation of specialties, either from the administrative standpoint or in defining the scope of journals.

Much work on human material, done in laboratories attached to hospitals, is concerned primarily with fundamental scientific problems, and such work takes its place, together with animal experimentation, in the progress of the science of pathology. On the other hand, every new advance in diagnostic methods rests upon the medical sciences. In my own field of chemical pathology the development of new diagnostic methods involves chemistry, physiology, pathology, and clinical medicine. Yet I think there is a place for a new journal devoted to those investigations of disease in man in which both the clinical field and the medical sciences are involved. Publications of work on human material, whether directed to fundamental problems or to diagnostic requirements, must often include clinical case histories or summaries adequate to give the medical reader an understanding of the nature of the material, and may also include technical and scientific matter too specialized for the

general medical journals. Such papers are apt to be more difficult to place than those falling clearly within either the "clinical" or the "scientific" field.

Whether the new journal has the title "Quarterly Journal of Clinical Pathology" or some other title, it is to be hoped that its scope will not be conceived as covering only the narrowly diagnostic aspect, but will be wide enough to include other work on human material, and especially investigations of disease in the living patient.—I am, etc.,

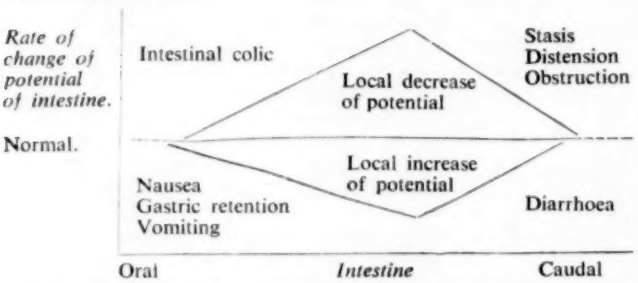
Newcastle-upon-Tyne. FREDA K. HERBERT.

Neurogenic Ileus

SIR,—I found Mr. J. T. Chesterman's paper on neurogenic ileus (June 1, p. 830) interesting. It shows a great amount of thought and work and an understanding of a theory. The theory is badly expressed because an unsuitable word is used, and this becomes patently obvious on careful examination of the diagrams which are intended to convey the essentials of the theory. I am not in a position to discuss the theory, but it is deplorable that it should be expressed in an unsuitable form which is certain to hamper its development.

"A" of Fig. 1 graphically defines flattened and steepened gradients. Analysis of "B" on this definition shows a local focus preceded by a flattened gradient and followed by a steepened gradient. This is called "local focus causing steepening of gradients." Why? It could equally well be called "local focus causing flattening of gradients." Similarly, "C" is called "local focus causing flattening of gradients" but could equally well be called "local focus causing steepening of gradients." The diagrams do not represent "intestinal gradients" but they do try to represent "rate of change of intestinal gradient," and these two are as different as a curve is from a straight line; as different as $y=x^2$ is from $\frac{dy}{dx}=2x$.

It is apparent that the unsuitable word is gradient. A gradient is a thing of precision, a straight line at a precise angle to a base line. A *change* from one gradient to another gradient happens precisely at a point and you cannot examine the intestine and pin-point the place where the "gradient changes." By differential calculus one can visualize a gradual change as a multiplicity of minute straight line changes of gradient spread over a length of intestine—but the word gradient by itself in no way implies this gradual change. May I suggest that the word "gradient" be discarded and the word "potential" used instead. The essentials of the theory would then be written as follows: A focus causing local increase of potential produces a decreased rate of change of potential on the oral side of the focus with decreased activity and an increased rate of change of potential on the caudal side with increased activity. Similarly, a local decrease of potential is preceded by an increased rate of change of potential and followed by a decreased rate of change of potential. This is easily and precisely expressed graphically.



The essential simplicity of this nomenclature, which specifies the nature of the focus and then describes the changes each side of the focus, should be compared with the nomenclature of the focus by reference to the change on one side of the focus without specifying which side. It is not possible in the space of a letter to go into the full application of this change of nomenclature, but surely I have shown how the use of the word "potential" instead of the word "gradient" leads to a logical expression of the present theory. Looking to the future, I suggest that potential will be found to be the *right* word when research is concerned with the minutiae of electricity in living matter.—I am, etc.,

Birkenhead. ALEX. M. FRASER.

Penicillin for Diphtheria Carriers

SIR,—I started to try local treatment of diphtheria throat carriers by means of applying every two hours a solution containing 2,000 units of penicillin per ml. A night interval of 8 hours is observed. I have so far treated three cases only: the results are entirely encouraging, as no more diphtheria bacilli could be obtained in culture from repeated smears after 13 applications, totalling 67,000 units of penicillin. I would not consider it wise to wait for more cases before giving publicity to this possibility of treatment, as it is essential to induce other workers to make similar trials at the earliest opportunity. Should more attempts prove the efficaciousness of this method, there is no need to stress its far-reaching importance in the control of diphtheria.—I am, etc.,

General Hospital, Cieszyn, Poland. W. BINCER.

Inhalation Apparatus for Penicillin

SIR,—We note the report in your issue dated June 15 of the meeting of the Royal Society of Medicine, when the uses of penicillin were reviewed and questions were asked about the availability of inhalation apparatus. It seems appropriate to offer an explanation why the special inhalation and other apparatus developed by this company has not been made generally available.

When we first produced aerosols by what is now generally known as the "phantomyser" system the immediate practical applications were for the control of different kinds of pests, and subsequently for air disinfection generally. Throughout the war our energies were almost wholly devoted to the production of apparatus for these purposes, and, whilst we were fully aware of the potentialities of aerosols in medical practice, the development of production of inhalation and other apparatus for this purpose was severely restricted. The possibility of being able to replace the repeated injection of penicillin, and other medicaments normally requiring parenteral administration, by a simple efficient inhalation technique is so novel that even now we are reluctant to place apparatus on free sale until further convincing trials have been completed. The findings of these trials will be published in due course.

For the production of wet sprays of small particle size there are several excellent machines available commercially, but it is important to remember that a true aerosol can be produced only by apparatus specially designed for the purpose, such as the "phantomyser" and "aerolyser" manufactured by this company.—I am, etc.,

London, W.1. A. K. BEDWELL,
Director, Aerosols, Ltd.

Health Service Bill

SIR,—If once the people of Britain realize that the medical profession are not fighting for themselves alone but for the freedom of this country as a whole, they will surely rally to their aid. It would be well, then, to appreciate that it is not health *per se* that the battle really rages around, but freedom or bondage.

At present the health of the people actually depends far more on good housing, good feeding, good clothing, good education, and freedom from the incessant irritations interminably imposed by increasing controls and restrictions, rules, and regulations, which predispose to, or actually cause, ill-health, than upon a chaotic revolution in the medical world for the sake of vindicating Socialist doctrinaire theories. Until these primary matters are rectified there is little use in the politicians trying to saddle the medical profession with responsibility for the state of the nation's health, be it good, bad, or indifferent.

Power-seeking politicians are well aware that complete control of the people, which is essential to their policy, can only be secured by first completely controlling the medical profession. This is to be achieved by tempting or bullying them into becoming State-paid, State-instructed medical officers, dependent or largely dependent for their living on being efficient Government tools, subject to direction and instruction from the "minister-dictator of health," who does not negotiate but "rules by regulation." Such rules and orders are nothing less than dictator-made laws, beyond the real control or scrutiny of Parliament itself. Do the people of Britain consciously stand for this chicanery in the name of health? The Bill in its present

form is a Socialist measure for which no true mandate from the country has ever been given to this, or indeed to any, previous Government, whatever is stated to the contrary. A Socialist majority can, and no doubt will, ram the Bill through. Thereafter the only course open to the profession in the interest of the whole community is to refuse to sign any operative contract with the Government, and thereby retain their liberty. This proved successful in New Zealand under similar coercive circumstances.

Little more than a year ago we fought for our very existence against a country which had yielded up its freedom to political power-seekers. With this terrible example before our eyes are we, like they, going to walk into this cunningly devised trap of "National Socialism," a gilded cage of bondage from which there can be no return to freedom? Belsens and Buchenwalds are the logical outcome of dictator-made laws when resistance or protests run counter to the whims or fancies of "dictator-ministers." Do not delude yourselves with the thought that "it could not happen here"; steadily it is happening. Power breeds the lust for power, and any discerning person can observe its erosion on the freedom of this country day by day.

People and doctors alike favour improved health—who does not?—but not as devised in this Bill, which aims at improved political power for politicians, not improved health for the people. It would make the community disease-conscious, would quadruple the work of the already overworked hospitals and doctors by overloading them with trivialities which undoubtedly would be the outcome of so-called free treatment. To control this increased traffic in sickness and drain on the Treasury it would become necessary to issue regulations to medical officers to issue certificates as instructed by the State, not in the interest of the patient, but of the State. The medical officer, being a State servant in greater or lesser degree, without alternative source of employment and therefore owing allegiance to the State for his bread-and-butter, would of necessity have to consider the State's interest first, last, and all the time, to the very great detriment of the patient.

There are insufficient doctors or hospital beds in the whole of the United Kingdom to cope with the increase in sickness incidence which this Act would bring about. The disgruntled, disillusioned, dejected, despondent, and dreary State doctors will not easily radiate health and happiness to the pathetic patients in like plight to themselves; no, not even if directed to do so by the Minister of Health, strange as that may seem.—I am, etc.,

St. Annes. G. H. URQUHART.

SIR,—Less than two months ago a Special Representative Meeting passed with great unanimity a number of resolutions. They were, for example, firmly of the opinion that goodwill in practices should be retained, that there should be no direction, that payment should be exclusively by capitation, and that there should be no discrimination against doctors who remained outside the public service. Not a ripple has all this caused on the calm waters of the Ministry. The profession's representatives have been as completely ignored as if they were some babbling collection of village busybodies.

While we are grateful to Mr. Willink, Mr. Reid, Mr. Strauss, Mr. Law, and others for doing their best to put the profession's case in Standing Committee C, they, too, have been completely flouted by an automatic majority echoing the constant urge of the Minister: "Let us not waste time on windy argument. This Bill must go through!" Needless to say, the Minister has displayed great knowledge of professional affairs. He has said that when a practice is sold it is only the panel portion which has any monetary value, the private part being valueless. He has said that it is undesirable for sons to follow their fathers in practice, as this may lead to "inbreeding." He sticks to his desire to gaol any doctor who makes a profit on selling his house, and he is denying the use of the hospitals to doctors who remain outside his scheme. In short, there is no doubt that this Bill will become an Act unmodified in the slightest way by the unanimous resolutions of the British Medical Association. What then? Time drags on. It may yet be eighteen months before doctors are to say whether or not they will serve under Mr. Bevan or under Hippocrates. Meanwhile, fatalism sits like a load on our shoulders, and it has been unkindly said that the warriors of yesterday are the mathematicians of to-day, working out what their compensation is likely to be—unmindful of the hard fact that that compensation will be rather less negotiable than a post-war credit certificate.

The real difficulty is that it takes a lot of moral courage for a doctor, not too well off, with a wife and family to support, to stick out against the coffers of the Treasury, to put his professional soul higher than the plain risks of bankruptcy. Dr. X, of Devonshire, may well say to himself: "I would stand out, but I should hate to be the only one doing so. And how am I to know what Dr. Y, of Lancashire, will do?." To ask the doctors of the country to keep their passions hot for a year or more, and then to remember all that has gone by and to turn down this scheme, as it should be turned down, is asking for something that may not happen. There are still doctors one meets who will say with great pride: "I was one of those who stood out in 1911." But there are not many of them. Who will be able to say, in thirty years' time, "I was one of those who stood out in 1947"?

But there is a way out. This scheme, like peace, is indivisible. Passive resistance stoutly sustained over a few wide areas would make it unworkable. There are areas more convinced of the importance of freedom than are other areas. Let them but stick to their guns and they will win. More, they will encourage the others to follow their lead. Yorkshire, Surrey, Kent, the Metropolitan Counties—your power is in your own hands. It does not depend on the waverers elsewhere. We are a great profession. We have a right to be heard, to be consulted in these matters. Let us stand on our right.—I am, etc.,

Ashtead, Surrey. W. EDWARDS.

SIR,—The new National Health Service Bill when passed into law will do much to co-ordinate and bring up to date our health services. There is, however, likely to be a time lag before the new service can do itself full justice, if only on account of the shortage of suitable buildings for health centres and hospitals. The health services have been chosen as the first branch of national economy to be nationalized by the Labour Government, and with a policy of limited nationalization now being followed it is inevitable that the development of the health service will in the first place be handicapped by the fact that industry in general remains in private hands. Thus it is apparent that if the building programme called for to make the service fully efficient is put out to private contractors huge profits will pass into their hands, thus greatly increasing the cost of the service and reducing the speed of construction.

I would suggest that Mr. Bevan would do well in dealing with this obstacle to progress to consider the example set by Edmonton and other progressive local authorities which have a fine record of building by direct labour. Is there any reason why the new hospitals which we need so badly should not be built by direct labour employed by the new regional hospital boards, and the health centres by the building departments of the major local authorities? The new buildings which are so urgently required could then be erected more cheaply, quickly, and efficiently.—I am, etc.,

St. Mary Cray, Kent. BRIAN H. KIRMAN.

SIR,—The profession should be grateful to Dr. W. Edwards for his letter (June 15, p. 926) emphasizing the significance of Mr. Bevan's remarks in Committee. All our efforts will have been in vain unless we can secure two essentials: (1) The terms and conditions in any National Health Service must be acceptable to (and not accepted under economic stress by) the majority of the profession. (2) Those of us who wish to remain outside the service must not be penalized. Surely, the public has never expressed its desire for a State monopoly of medicine?—I am, etc.,

Dorking. CYRIL E. BEARE.

The Hypochondriac's Treatment

SIR,—In the press Dr. Edith Summerskill is reported to have said that "in future no doctor need prostitute his science by pandering to hypochondriacs. The malingerer will find short shrift in medical health centres. The doctor of the future will be judged not by the size of his bank balance, his house, and car, but by his capability to prevent and cure diseases." Does Dr. Summerskill really believe that her colleagues are

so deficient and the general public so credulous as to measure a doctor's capability by these criteria? Surely the hypochondriac is in need of careful and sympathetic treatment, and even the malingerer requires not short shrift but a most careful investigation, first as to the accuracy of the opinion, and secondly of the economic factors leading to such conduct.

If this is to be the aggressive spirit animating the new health service let the profession and the general public take warning before it is too late.—I am, etc.,

Bournemouth. E. D. GRANGER.

Obituary

ERNST FREUND, M.D.

Prof. Ernst Freund, born in Vienna in 1863, died in London on June 2, 1946. He studied medicine at the University of Vienna, was a brilliant student, and obtained his M.D. at the age of little over 22. In the mid-nineties of the last century he became director of the biochemical department of the "Rudolf-Spital," and remained in that position for almost forty years. When later he was made professor of pathological chemistry in the university, he worked in his old laboratory until he reached the retiring age. At that juncture, when Freund was in danger of being left without any opportunity to continue his work, Mr. F. F. A. Pearson put into being the "Pearson Cancer Research Foundation" to enable him to carry on his research. When Austria was overrun by the Nazis Mr. Pearson transferred the Foundation to London, where Freund worked to his last day.

The early years of Freund's career (writes F. S.) coincided with a glorious period of continental science. At that time Freund did some outstanding work on the problem of blood clotting. One of the results of his experiments was the use of sodium citrate as an anticoagulant. At a meeting of the "Gesellschaft der Aerzte" in Vienna he suggested the use of it for blood transfusion (1891). Freund's researches covered a wide field. His institute was a part of one of the best Viennese hospitals at its best time. At the beginning of this century he worked in close collaboration with men like Paltauf, Pick, Sternberg, Kraus, Bamberger, and Obermeyer. Many new methods of biochemical analysis were devised by Freund and his co-workers. Special care was given to urine analysis, and Freund was able to demonstrate the presence of enzymes or enzyme-like substances which were believed to be specific for various diseases. Another line of research for many years successfully pursued by Freund was concerned with the physiology and pathology of digestion. He tried not only to explore and to determine the products of digestion in normal and pathological conditions, but he also aimed at elucidating the mechanism of the absorption of these metabolites through the intestinal wall. These studies were followed by investigation on the mechanism of protein synthesis within the living body.

From his early days Freund devoted much zeal and time to the study of tuberculosis and published several papers dealing with biochemical aspects of this disease. Also rheumatism fell within the scope of his work. His main interest, however, was the problem of malignant growth. Freund came to conclusions which are well in keeping with the results Warburg obtained more than 40 years later. With his collaborator, G. Kaminer, he described the cytolytic reaction which he modified and revised in many respects in later years. The technique of this test was much too complicated to become a routine method. It is, however, fair to say that those few who have mastered the technique agreed that the results were better than those achieved with any other cancer reaction. Freund's belief in biochemical changes in cells as a predisposing factor of malignant growth led him to therapeutic assays. He tried to influence the pace of growth by dietetic means; long before the importance of *B. coli* for the vitamin contents of the body was known he stressed the importance of maintaining a normal bacterial flora in the gut. He also suggested several therapeutic methods aiming at the restoration of the normal intestinal flora.

More than 200 papers are the scientific inheritance that Freund has left to posterity. With an unquenchable spirit he devoted his life to science and to the fight against disease.

The death occurred at Bath on June 12 of Dr. HERBERT CASTLEMAN JEFFREYS, who had had a very varied career in many different parts of the globe. His father, Herbert Jeffreys, was one of the early settlers in Victoria; but H. C. Jeffreys, his only son, was actually born in 1874 near Taunton, though his father returned with him to Australia while he was a boy. He was educated at Sydney Grammar School, then at Melbourne University, and then at New College, Oxford. After taking his arts degree with honours he studied medicine at St. George's Hospital in London, whence he qualified as M.R.C.S., L.R.C.P. in 1898. After holding the usual resident appointments at his own hospital, he next served in the South African war as civil surgeon with a yeomanry field hospital unit. After that he entered the Colonial Medical Service and spent a few years in British Honduras. Returning to Australia, he found it uncongenial and rejoined the Colonial Service, this time in Nigeria, when he finally retired in 1925. He had taken the D.T.M. at Liverpool in 1906 and the D.P.H. at Cambridge in 1912. In Nigeria he was for a time inspector of a leper colony, and after his retirement he indulged freely in his hobby of foreign travel. A further African experience fell to his lot as medical officer to the Tanganyika Concessions Expedition to Angola, in Portuguese West Africa. An earnest, kindly, hardworking, and yet modest man, Jeffreys had many friends and few enemies. He was unmarried.

The death of Squadron-Leader ROBERT WILLIAM STANLEY MARSHALL has now been officially announced. The only son of Dr. and Mrs. Robert Marshall of 9, College Gardens, Belfast, he was born on July 12, 1916, and was educated at Methodist College and Queen's University, Belfast, graduating M.B., B.Ch., B.A.O. with honours in June, 1940. He was then appointed house-surgeon and physician at the Royal Victoria Hospital, Belfast, and joined the R.A.F.V.R. early in 1941. He married, in 1941, Hilary, elder daughter of Prof. and Mrs. P. T. Crymble. He served in Persia, Iraq, and India for three years before being appointed S.M.O. to No. 909 Wing, R.A.F., Burma, where he was killed on June 3, 1945, while on flying duties. J. B. Y. writes: His untimely death at the age of 28 removes from our midst one of the most promising of the younger members of the Belfast Medical School. To have known him as a boy at school, as a student at the University, as a houseman in the Royal Victoria Hospital, and in a more intimate sense in his own home, is to appreciate the grievous loss sustained by his family and many friends. Robert Marshall was characterized by his great natural charm and cheerfulness, by his thoughtfulness and loyalty. A cultured conversationalist with a broad outlook on life, his ready wit and love of humanity marked him as outstanding among his peers and was an indication of his maturer manhood. A brilliant scholar and undergraduate he gained many distinctions. He was a fine golfer and swimmer, a keen motorist and an ardent photographer. His work as a resident student and houseman in the wards of the hospital testified to his thoughtfulness and kindness to those in suffering and distress and to his knowledge of essentials and thoroughness in the practice of medicine.

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Dr. GEORG KOSAK, who died at the early age of 38 on June 16 at his home in Winchmore Hill, London, was an M.D. of Munich and came over here as a refugee from Nazi oppression. After further studies he became L.R.C.P.&S.Ed. and L.R.F.P.S.Glas. A colleague writes: He soon took to the ways of life of this country which he grew to love very much, and when he eventually set up in practice he became a very successful doctor whose patients sought his professional and friendly advice alike. He was of a quiet and amiable disposition whose depth of feeling showed itself by some casual remark, and he had an unfailing sense of humour.

The following tribute to Mr. W. MCADAM ECCLES comes from Mr. A. P. Bertwistle. A man's life is divided into three well-defined phases: The first, of education; the middle, of his life's work; and the third, of his retirement. This last only too often means lone rounds of golf, visits to deserted clubs, half-hearted efforts at gardening, etc., all leading to a premature decease. On the other hand it may mean a change in work; this was the case with Mr. Eccles. I first knew him at the end of the middle phase. One's first impression of him was of an aloof, pernickety man, but this rapidly disappeared as one discovered his kindness. He was religious and a teetotaller, neither of which was an asset in popularity among medical students. For his teetotalism he had excellent reasons; he took a keen interest in drink addicts. He was a past-master with trusses. He had sound business instincts—his opinion on a financial question was always of the greatest help. He was a perfect correspondent, prompt and to the point. When the last war broke out he threw himself whole-heartedly into A.R.P. first-aid work. Towards the end of his life he took up the question of medical films with a vigour rarely found in a man of his years. He originated a scheme for obtaining the best out of them. He produced a "short" showing how blitzed casualties were dealt with; when it was shown at the local cinema so realistic was it that 14 people fainted, and the sheepish looks on those who had succumbed, when they saw how it had been faked, was a study. As a diagnostician he had few equals; I, for one, will ever be grateful for his discovery of a dental focus of infection.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on June 15 the following degrees were conferred:

D.M.—R. D. Newton.
B.M., B.Ch.—T. J. Thompson (in absence).

UNIVERSITY OF CAMBRIDGE

At a Congregation in the Senate House on June 24 the degree of Doctor of Science, *honoris causa*, was conferred by the Vice-Chancellor on five delegates to the Royal Society Empire Scientific conference during its visit to Cambridge. The medical recipients of the honorary degree were Prof. C. H. Best, M.D., F.R.S., head of the Department of Physiology, University of Toronto, and director of the Banting-Best Department of Medical Research; and Dr. F. M. Burnet, F.R.S., director of the Walter and Eliza Hall Institute for Medical Research, Melbourne. Introducing Prof. Best, the Public Orator said that he had won an honoured name in the realms of medicine and physiology and was joint leader of an institution which had made notable contributions to the relief of human suffering. Of Dr. Burnet he said that he excelled particularly in the field of bacteriology; his book *Biological Aspects of Infectious Disease* was famous and fully entitled him to wear the Cambridge scarlet.

The Marmaduke Sheild Scholarship for 1946 is awarded to R. P. Holmes of Trinity College.

The following candidates have been approved at the examinations indicated:

FINAL M.B.—Part I (*Surgery, Midwifery, and Gynaecology*): A. Ackroyd, A. P. Baker, E. A. D. Boyd, G. A. Bracewell, G. T. F. Braddock, D. C. Bradford, J. H. S. Buchanan, A. O. Chase, L. W. Clarke, J. Crossley, D. E. Cullington, A. B. Douglas, W. M. Edgar, A. S. Fairbairn, G. R. Freedman, E. C. Glover, J. L. Harris, C. F. Hingston, E. M. James, C. S. Kirkham, J. G. Latimer, R. G. Law, D. M. N. Longridge, I. D. Mackichan, E. D. Marsh, D. G. Miller, D. V. Milward, J. L. Moffatt, D. R. Morgan, A. G. Norman, D. O'Brien, J. M. Palmer, E. E. Philipp, G. Raperport, P. Rhodes, D. H. Richards, D. W. T. Roberts, K. J. Roberts, P. W. Rowsell, B. E. Shairp, M. F. Smith, J. E. H. Stretton, M. K. Towerr, H. Wainstead, K. L. Williams, R. D. Williams, R. H. L. Wolfsohn, G. M. Woodwark, P.-M. Yap, R. E. V. B. Young. *Women:* Mrs. E. W. Higgens, G. F. Jacob, G. A. Meigh, B. E. S. Richards, D. M. Robinson, P. M. Stanwell.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 5 p.m. each day: July 9, Prof. John Beattie: Physiology of Convalescence; July 10, Walker Prize Lecture by Dr. Peyton Rous: The Antecedents of Cancer; July 11 and 18, Charles Tomes Lectures by Sir Frank Colyer: Dental Disease in Animals, and Positional Variations in Animals; July 25 and Aug. 1, Hunterian Lectures by Prof. W. D. Coltart: Injuries of the Astragalus, and by Prof. A. L. d'Abreu: War Surgery of the Chest.

Dr. Peyton Rous, of the Rockefeller Institute, New York, will give a lecture on "The Antecedents of Cancer," on Wednesday, July 10, at 5 p.m., at the College. Dr. Rous was awarded the Walker Prize for 1936-40 for his discovery and systematic investigation of filtrable tumours, and is now paying a visit to this country to lecture and visit centres of cancer research.

A course of 68 lectures on anatomy, applied physiology, and pathology will begin at the College (Lincoln's Inn Fields, W.C.) on Sept. 2 and will continue until Oct. 18. There will be two lectures daily from Monday to Friday each week at 3.45 p.m. and 5 p.m. The fee for the whole course is £15 15s.; it will not be possible to take one or two subjects only. Applications accompanied by a cheque should be sent to the secretary of the College. Fellows and Members will be admitted without charge, but must apply for a card of admission.

At a meeting of the Council of the College held on June 13, with Sir Alfred Webb-Johnson, Bt., President, in the chair, Sir William H. Collins handed to the President a cheque for £100,000 which he promised in February last as a further gift for the scientific departments of the college, in encouragement of the project for an Academic Medical Centre in Lincoln's Inn Fields.

There was presented to Prof. E. C. Dodds, of the Middlesex Hospital, a cheque for £1,000, being a prize given to him by Mr. Charles Mayer, of New York, in recognition of his work in discovering and studying stilboestrol, and as a contribution for his further researches in the field of synthetic hormones.

Diplomas

Diplomas of Fellowship were granted to the following candidates:

L. O'N. Knox, W. Bullock, S. H. C. Clarke, G. C. Tresidder, J. F. H. Bulman, W. M. H. Shaw, C. J. Evans, R. S. Mutley, J. H. Penrose, B. J. Harries, H. F. Lunn, J. S. H. Wade, P. F. Milling, R. C. Barclay, Muriel Crouch, J. W. P. Gummer, G. K. Tutton, W. J. Atkinson, Carolina M. van Dorp, F. R. Wilde, A. Elton, P. R. N. Kerr, M. E. Minchin, T. L. T. Lewis, G. D. Adhia, S. G. Aitken, C. E. Baker, E. V. Perling, A. K. Bose, J. Borrie, J. K. Bors, W. S. Charlton, W. P. Cleland, K. Coen, V. V. Da Silva, J. B. Devine, M. R. Ewing, G. J. Fraenkel, H. K. M. A. Hassab, G. F. Homer, F. L. Hutter, A. M. Khan, M. M. Kinawy, R. J. B. McEwen, J. W. McNamara, G. B. Morris, R. Nigam, R. A. C. Owen, N. K. Parikh, A. P. R. Pinto, V. G. Renowden, D. G. Simpson, J. McN. Tainsh, D. F. Thomas.

A diploma of Membership was granted to T. L. T. Lewis.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following candidates:

R. E. Adam, A. F. Alsop, F. J. Aumonier, J. W. L. Bain, C. T. Barry, V. T. Baxter, P. H. Blackiston, J. A. Bolster, J. D. Bourke, A. K. Brown, C. H. Bulcock, J. H. Capon, P. S. Cheshire, K. S. Crawford, G. N. Deshmukh, S. Dobbin, T. M. Doran, G. A. Eason, B. Fairburn, J. N. Fell, Eileen M. R. Ghey, D. T. Gilchrist, Alexandra Goldblat, D. W. F. Gotla, H. W. C. Griffiths, Eileen M. L. Gunderson, J. Halton, Margaret D. W Hamilton, A. W. Hardie, J. B. Hargreaves, A. G. Hegarty, P. J. Helliwell, A. J. H. Hewer, E. Holden, Elizabeth A. Hoult, D. D. C. Howat, E. G. Hudson, E. James, Flavia Z. L. B. James, Emily E. Johnson, D. S. Jones, Olive M. G. Jones, W. M. Jones, B. S. Kent, R. C. Lawrence, R. Lawrie, Janet E. Leng, J. M. Lockett, K. McCaul, Elizabeth McKenzie-Newton, D. Macpherson, F. W. Marshall, Sheila Millar-Danks, P. L. F. Mortimer, J. F. Perredes, Marie E. Potter, K. J. Powell, I. A. Schalit, M. Shaw, A. D. Sinclair, J. A. Smart, J. Sneddon, L. W. Spratt, G. S. Steele-Perkins, E. Stevenson-Wright, Margaret M. G. MacH. Sweeney, A. I. Ward, Kathleen M. Watson, O. M. Watt, R. J. Whiting, Dora M. Young.

The following hospitals were recognized for the six-months resident surgical post required of candidates for the Final Fellowship Examinations:

Prince Bijoy Singhji Memorial Hospital, Bikaner (three general house-surgeons); Central Middlesex Hospital (the third A.M.O. surgical and three additional surgical posts for as long as the Ministry of Health scheme for ex-Servicemen is in force); Clatterbridge General Hospital, Bebington (the resident surgical officer).

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the President and Fellows of the College, held on June 6, the following were admitted licentiates and members:

B. G. Alton, M. I. Drury, B. Moshal, H. J. Cronhelm, R. G. Cross, Sheila Sheehan, E. W. L. Thompson.

The Services

INDIAN MEDICAL SERVICE DINNER

After a lapse of seven years the annual dinner of the Indian Medical Service was again held in London at the Connaught Rooms on June 19, when 83 serving and retired officers met under the presidency of Lieut.-Gen. Sir Ernest Bradfield. The guests were Surgeon Vice-Admiral H. St. C. Colson, Medical Director-General R.N.; Air Marshal Andrew Grant, Director-General R.A.F.M.S.; Lieut.-Gen. Sir Alexander Hood, Director-General A.M.S.; Lord Moran, P.R.C.P.; Sir Alfred Webb-Johnson, P.R.C.S.; Mr. Eardley Holland, P.R.C.O.G.; and Mr. H. S. Souttar, President British Medical Association.

Work of the I.M.S. and I.A.M.C.

After the Royal toast Sir Ernest Bradfield proposed the toast of the Indian Medical Service and took the opportunity of outlining the work of the Service, and of the Indian Army Medical Corps which had been developed from it, during the war. In 1939 the I.M.S. was in a more flourishing state than it had been for some years. The military side with its military hospitals had attained a corporate spirit so long denied it in the individualism of the old regimental system. The civil side still offered opportunities for interesting and important work, though many of its responsibilities in the civil medical administration had been absorbed by an independent medical profession, for the growth of which the I.M.S. has been responsible. In September, 1939, the strength of the Service was 631 officers, of whom 265 were in civil employment. At the end of the war with Japan the Service, including the new Indian Army Medical Corps, had 7,625 officers, of whom 108, and 31 re-employed retired officers were in civil employ. Included in these figures were 206 women doctors, of whom 53 had been recruited in the U.K. The pre-war strength of the Indian Hospital Corps was 12,000; at the end of August, 1943, the strength in Indian officers and other ranks was 156,393. It is of interest to compare these figures with those of the 1914–18 war. At the commencement of that period the permanent strength of the I.M.S. was 770; it finished the war in 1918 with 793 permanent officers and 625 temporary officers—i.e., the recent effort was five times as great. During the war India mobilized over 1,000 field medical units, and provided 1,500 specialists. The total hospital bed strength reached 146,248, and the nursing services and amenities were really first class. Sir Ernest visited the Army Medical Training Centre at Poona last year, which is to carry on as an Indian Millbank. At one time there were 450 medical officers in training, and the results have been excellent. Indian doctors, who included a number of licentiates given commissions in the I.A.M.C., were not only taught the responsibilities of officers, they were given intensive field training and a special very comprehensive clinical course at Poona hospitals. Recruitment to the Indian forces remained on a voluntary basis throughout the war, and 23% of Indian graduates under 45 years of age and 12%

of the medical licentiates of the same age were recruited to the armed Forces. From May, 1942, recruitment of Europeans to the I.M.S. ceased, and the War Office undertook to provide from the R.A.M.C. British doctors required for duty with Indian troops. "The medical man-power situation in this country, however, became still more serious, and in 1942 I was a member of the Medical Personnel Mission appointed by the Secretary of State to visit India and to make recommendations. We are fortunate in having with us as guests to-night Mr. Souttar, the leader of that mission, and General Hood, Director-General of the R.A.M.C., who has proved himself to be one of the great administrators of this war, and I am glad of the opportunity of paying a tribute to a very happy association and to their great sympathy for the Indian Medical Services as well as for their wise counsel which solved this very difficult problem. It was clear that the medical authorities in India had been asked to build up a medical service to meet the requirements of an Army whose size and rate of expansion had never been envisaged by the General Staff. Although everything possible had been done it seemed that a breakdown could not be long delayed if existing conditions were permitted to continue. Great stress had been laid upon the shortage of doctors, but the real danger of the situation lay in the quality of the recruits provided for the Indian Hospital Corps and the scarcity of trained nurses. A system under which the officers belonged to one service, the I.M.S., the Viceroy's Commissioned officers and Warrant officers to another Department, the I.M.D., and the men to another Corps, the Indian Hospital Corps, was now obviously unworkable. The Mission, therefore, made proposals which were designed to provide one efficient and complete medical corps for all ranks of the Indian Army, and as a result came the I.A.M.C., a solution to India's medical problems which had been suggested before but never until now to provide an efficient medical corps including all ranks in one organization. There was no intention on the part of the Mission that terms and conditions of service of officers in the I.M.S. should be altered in any way, neither have they, but the Army Department has decided that the new corps should be an entirely military corps with no option of transfer to civil appointments."

After surveying the extent of the military effort of the Service and its high scientific record, General Bradfield concluded: "No one can foretell yet the future of the Indian Medical Service. Some of us, including practically all the senior serving officers, felt that our D-Day had arrived; but it is only logical that the disposal of all the Indian Services should be decided when a political settlement is reached as a result of the present negotiations. The creation of an Indian medical profession based on the ideals of British medicine has always been the aim of our Service, which founded the first medical colleges in India more than 150 years ago. The record and place of the I.M.S. in the building up of modern India is second to none of the great administrative services, and the I.M.S. will live in the I.A.M.C., in more than 45,000 registered doctors and the Civil Medical Services of India, who owe their existence in a very large measure to our Service."

The toast of "The Guests" was proposed by Major-General Sir John Megaw and replied to by Mr. H. S. Souttar who, as Chairman of the Central Medical War Committee, had been deputed to India in 1942 along with Sir Alexander Hood and Sir Ernest Bradfield to advise on the medical man-power situation in India in relation to the greatly expanding needs of the Forces. The result of the Mission had been the formation of an Indian Army Medical Corps in which all ranks were included, and he had had no hesitation after seeing the work of the Indian doctors in military hospitals in making the recommendation which led to this. He was specially appreciative of the work of the Indian licentiates who, on the recommendation made, were given commissions in the Corps. These men filled a serious gap, and their subsequent work fully justified the action taken. Mr. Souttar paid a tribute to the I.M.S., whose spirit had been diffused throughout the medical services in India. India would not forget the work of the Service, which would remain a great tradition.

Col. (Acting) R. D. Davy, M.C., R.A.M.C., has been appointed O.B.E. (Military Division) and Capt. P. M. Kirkwood, I.M.S., has been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in the field.

Capt. J. H. Keesey, R.A.M.C., has been mentioned in dispatches in recognition of gallant and distinguished services in the field.

The Efficiency Decoration has been conferred upon the following officers of the Territorial Army: Lieut.-Col. (Hon. Cols.) W. A. Lister and W. H. D. Patterson, Lieut.-Col. J. C. Anderson, O.B.E., Major (Temp. Lieut.-Col.) T. F. Briggs, Majors (Hon. Lieut.-Cols.) W. R. Everatt and J. J. Myles, Hon. Major H. F. Wattsford, Capts. (Hon. Majors) R. E. Davie, M.C. (T.A.R.O.), and J. G. McDowell, and Capt. W. P. Blackstock, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Died.—Major Samuel Barratt Browning, R.A.M.C.

Killed in air crash in Nigeria.—Capts. Reginald Thomas Moore and Evan McGregor Stirling, R.A.M.C.

Medical Notes in Parliament

HEALTH SERVICE BILL

On June 25 Mr. BEVAN moved that the Committee should meet in the morning and afternoon, so as to get the Bill through the House of Commons by the summer recess. There was agreement on many fundamental features of the Bill and an administration must start as early as possible to get the Bill into operation by 1948. Mr. Bevan's proposal was accepted.

ASSISTANTSHIP WITH VIEW—OR WITHOUT

Resuming the discussion of Clause 35, the Committee agreed to a proposal by Mr. KEY to amend subsection 6 dealing with instances where a doctor performed services as an assistant to another doctor for payment substantially less than those services might reasonably be expected to be worth and afterwards succeeded to the practice. Mr. Key's amendment was to add after the words "expected to be worth" the further words "having regard to the circumstances at the time when the remuneration was fixed."

Mr. J. S. C. REID, discussing this provision whereby a low payment to an assistant should be deemed to have been a sale or part sale of the goodwill if the assistant subsequently succeeded, moved to insert "if" instead of "unless" in the proviso "unless it is shown that the said remuneration of the first practitioner was not fixed in contemplation of his succeeding to the said practice or any part thereof." Mr. Reid also proposed that the word "not" in the same proviso should be left out. In the proviso as it stood the Government proposed to put the onus of proof on the accused person in a difficult inquiry which might be entered upon after the passage of a number of years. A doctor could not possibly know if it was in the contemplation of the assistant that he would succeed to the practice.

Mr. BEVAN said Clause 35 had been very difficult to draft because the Ministry had sought to find a whole series of offences to protect the whole scheme. He would look at the Clause again to see if any of the fears expressed at the previous meeting of the Committee were justified and whether any cause for apprehension could be removed before the report stage. He thought he would be justified in resisting Mr. Reid's amendment. He asked how a prosecution was to know what had been in contemplation, and said it was reasonable to put the onus of proof on the accused person. The Government was trying to protect the assistant in these cases against being mulcted and having to accept an unreasonable reward at the beginning of his career. These prosecutions would arise very unusually. It might be that the assistant took a very small amount of money because he had no experience or because it was in his interest to become assistant to an eminent physician. Those would be justifications. In other words, the circumstances would have to be taken into account and the assistant would be asked: "What was in your mind when you took so small an amount of money?"

Mr. WILLINK accepted the assurances of the Minister that he would look into the Clause as a whole. He pointed out that there might be a running agreement for an assistant partly before and partly after the appointed day, whereby the assistant would succeed to the practice not under the partnership agreement but by selection by the medical practices committee. In those circumstances, nevertheless, there might be deemed to have been a sale of the goodwill. Mr. Reid withdrew his amendment. In doing so, he asked Mr. Bevan to re-examine what should be done with the assistant's agreements which were no longer appropriate.

CERTIFICATION BY MEDICAL PRACTICES COMMITTEE

Mr. BEVAN moved to leave out the final subsection (10) and to add:

"(10) Any medical practitioner or the personal representative of any medical practitioner may apply to the medical practices committee for their opinion as to whether a proposed transaction or series of transactions involves the sale of the goodwill or any part of the goodwill of a medical practice which it is unlawful to sell by virtue of this section, and the committee shall consider any such application and, if they are satisfied that the transaction or series of transactions does not involve the giving of valuable consideration in respect of the goodwill or any part of the goodwill of such a medical practice, they shall issue to the applicant a certificate to that effect, which shall be in the prescribed form and shall set out all material circumstances disclosed to the committee.

(11) Where any person is charged with an offence under this section in respect of any transaction or series of transactions it shall be a defence to the charge to prove that the transaction or series of transactions was certified by the medical practices committee under the last foregoing subsection, and any document purporting

to be such a certificate shall be admissible in evidence and shall be deemed to be such a certificate unless the contrary is proved: Provided that, if it appears to the court that the applicant for any such certificate failed to disclose to the committeee all the material circumstances or made any misrepresentation with respect thereto, it may disregard the certificate and this subsection shall not apply thereto.

(12) A prosecution for an offence under this section shall only be instituted by or with the consent of the director of public prosecutions, and the medical practices committee shall at the request of the said director furnish him with a copy of any certificates issued by them under subsection (10) of this section and with copies of any documents produced to them in connexion with the application for that certificate."

Mr. REID moved to add to the words proposed by Mr. Bevan a further safeguard that if the medical practices committee did not within fourteen days of receipt of an application either issue a certificate or send a note to the applicant stating their reasons for refusing his application, they should be deemed to have issued a certificate. Mr. Bevan's amendment was good in principle but would only work properly if it could be worked speedily. He did not see how the medical practices committee could cope with this work without getting into arrears.

Mr. BEVAN said that almost all the work would be done by the executive council, and the medical practices committee would be in the background. The work in his proposed new subsections seemed to him the sort of thing the committee should do. If they imposed on the medical practices committee an obligation to give a reason why they refused to grant a certificate that would impose an obligation to give a direction or advice and would add to the work of the committee. Before long the medical profession would know what were reasonable conditions and what remuneration was paid to assistants immediately they started practice.

THE PRICE OF THE DOCTOR'S HOUSE

In reply to Mr. WILLINK, who asked: "And the price of the house?" Mr. BEVAN said it would be going too far to impose on the committee the obligation of saying what would be a reasonable price for a particular house, although they would take the price of the house into consideration in connexion with other things. There ought to be some way of conveying to the applicants to which part of the contract exception had been taken. He could not accept the imposition of the time limit.

Mr. REID asked what was to be done by a doctor's widow if she could not apply to the medical practices committee and ask whether she was free to take the top one of a number of offers made for her house. She must know beforehand or she would commit an offence as soon as the auctioneer's hammer fell. Mr. BEVAN said he was not concerned with the price the widow got for the sale. He was concerned with the influence on the succession. There was an offence where the price had an influence on the succession. Sir HAROLD WEBBE pointed out that unless a decision was given which enabled a successor to buy the house and enter into possession the local authority could take the house over within fourteen days of its becoming vacant.

Mr. REID withdrew his proposed amendment to Mr. Bevan's amendment and then moved to substitute a provision that the certificate issued by the medical practices committee should set out any facts known by the applicant to be relevant in place of Mr. Bevan's proposal that the certificate should set out all material circumstances disclosed to the committee. Mr. Reid said that as the amendment stood it would be possible to upset the certificate because of failure to disclose all the material circumstances. His object was to make sure that a man should only be prosecuted for having got a certificate when knowing that something was material he had deliberately withheld it.

Mr. BEVAN rejected the amendment and it was withdrawn. He thought it would be perfectly proper for the medical practices committee to take a newly disclosed fact into account for the purpose of invalidating a certificate. The Ministry might do something on those lines. When he said he would examine the language of the Clause the Committee must not assume he thought the Clause was wrongly drafted. He wished to avoid ambiguity. He accepted a contention advanced by Mr. Willink that unless the Ministry could make its intention more specific, existing partnerships might be seriously affected, and the partners would not know what to do. The words proposed by Mr. Bevan were then accepted and the Clause as amended was agreed to.

COMPENSATION FOR SCOTLAND

Clause 36 was next considered. In moving a drafting amendment Mr. KEY said three steps had to be taken. First there was the question of total compensation to be paid. That was put down at a figure of £66 million on the supposition that the number of doctors joining the service would be 17,900. If it fell below that number then the total of £66 million would be reduced by 1/17,900 for every practitioner below the figure of 17,900. The second step was to decide the apportionment of the total figure between the services in England and Wales and in Scotland. That would be decided upon the relative losses of the people involved in those two sections. The third step was taking the portion that came to England and Wales and deciding upon its proper distribution. That distribution would be decided according to regulation which would be made after consultation with the profession. The amendment which he moved made it clear that not only the doctors in the service affected by the present Bill were included but also those who would give services under provisions applicable to Scotland when the legislation for Scotland had been agreed to.

Mr. BEVAN said the sum of £66 million was largely based on what practices were changing hands for before the war related to the number of doctors who would come into the public service. The Committee agreed to Mr. Key's amendment and also to an amendment by Mr. WILLINK to incorporate in the Bill the figure of 17,900 practitioners.

PAYMENT FORTHWITH

Mr. WILLINK moved to provide that compensation should be paid forthwith or as soon as practicable after the appointed day or the day on which the name of the doctor to whom it was payable was entered on any list of practitioners undertaking to provide general services, whichever of those days was the later. Mr. Willink said that for the majority of doctors and their widows this was the bulk of their capital and might be the whole. His friends could not see why there should be a prohibition upon immediate payment.

Sir HENRY MORRIS-JONES said that Mr. Bevan's proposal was really a form of forced loan. Doctors had paid the money out and would have to continue paying interest at 4 or 4½%, as against the State interest of 2½%, until the loans were repaid. The Minister would gain the goodwill of the medical profession if he handed over the money.

Mr. BEVAN said that if he accepted the amendment the doctors would regard his act as evidence not of softening of the heart but of the brain. The money would be available to doctors when they normally received it—on death or retirement. Where there was great hardship the money would be paid out immediately. For £66 million to be handed over to the medical profession at once would have a most appalling effect. The money would be paid out at once where a young doctor had borrowed money at an unreasonable rate of interest.

Col. STODDART-SCOTT asked what Mr. Bevan proposed to do if the purchasing power of the £ fell greatly below what it was at present. Mr. BEVAN said other transactions did not make such an allowance, and transactions between doctors contained no such provision. The amendment was withdrawn.

On the motion that Clause 36 stand part of the Bill as amended Mr. SOMERVILLE HASTINGS asked for a ruling on the case of a practitioner who wished to withdraw from practice on health grounds and was paid his compensation. Supposing that after a year's rest he recovered and wished to apply for a post in an under-doctored area. Would he be in order in doing so although he had received his compensation? Mr. BEVAN thought this would be in order but said he would like to consider the matter further. The Clause was ordered to stand part of the Bill.

No amendment was moved to Clause 37 concerning practitioners dying or retiring before the appointed day, but on the motion that the Clause stand part of the Bill, Mr. REID asked what would happen to the goodwill of a practice supposing the doctor died now. Did the Minister advise the representatives to sell that practice as soon as might be? Otherwise the representatives neither got value for the practice on a sale nor did they come in for part of the £66 million. Supposing the Act came into operation on Oct. 1 and someone died on Sept. 15. Was the practice to be sold or were the persons participating in the £66 million to be widened so as to include that case?

Dr. COMYNS said it was anticipated that the Bill would become an Act about October or November. He submitted that the application of Clause 37 to doctors who retired from practice or died during the period between the passing of the Act and the appointed day was too narrow. Practices of doctors who had died since the outbreak of the war had been carried on by locums, by assistants, or under the protection of practices scheme. The Minister should see if it was possible to embrace that category. Mr. BEVAN said he had it in mind to insert on the report stage a date which would cover the points raised.

Dr. STROSS said unless the date was retrospective gross injustice would be done to widows or doctors who had died recently. Since the printing of the Bill there had been difficulty in disposing of practices.

Clause 37 was ordered to stand part of the Bill, as were Clause 38 (arrangements for pharmaceutical services) and Clause 39 (persons authorized to provide pharmaceutical services). Answering Sir H. MORRIS-JONES on the last Clause Mr. BEVAN said arrangements would be made in rural areas for doctors to provide medicines.

After some discussion the Committee agreed to Clause 40 (arrangements for general dental services). Mr. BEVAN gave an assurance that it would be possible for dentists to appear in the lists of more than one executive council. The Committee then adjourned.

SUPPLEMENTARY OPHTHALMIC SERVICES

On June 26 the Committee examined Clause 41. Section 1 of this Clause says it shall be the duty of every executive council to make arrangements with medical practitioners and opticians having the prescribed qualifications for securing the testing of sight by them. Mr. LINSTEAD moved to insert a reference to optical practitioners. He said that the White Paper set forth a temporary scheme which provided for the optician being the normal sieve through which the patient passed in order that eye diseases might be identified. The medical ophthalmologist was in reserve. As soon as the Minister was satisfied that adequate ophthalmic services were provided in any area through the specialist clinics he might wind up this supplementary scheme, and the nation would get the main scheme providing for first-class ophthalmologists as the first sieve through which the patient passed. The two schemes had unfortunately been presented by some people in the form of a conflict between the medical profession and the optical profession. There were at the moment 500 ophthalmologists recognized as specialists. There were probably the same number of medical practitioners with some specialist knowledge of eye diseases. He doubted whether the Minister could ultimately get many more than 1,000 first-class medical ophthalmologists or one for every 45,000 people. He did not think that in any reasonable time the manpower position would permit the introduction of what the Bill intended to be the main scheme. Circumstances would compel the Minister to keep to the subsidiary scheme for a large number of years. He believed there were something like 7,000 opticians in the country. There was no statutory register. He asked the Minister to make proper provision for the optical profession in the Bill, and to encourage that profession to go forward with education, examinations, and a statutory registration.

Mr. SOMERVILLE HASTINGS said the Minister would be able to make full use of all the ophthalmic opticians and the ophthalmic surgeons, who should work as a team. The head of the team ought to be the ophthalmic surgeon working from a hospital with a big clinic and with assistants under him. The ophthalmic opticians should work with him not only in the hospital clinic but in the health centres. These centres should be outposts of the central clinics run by ophthalmic opticians so that sight could be tested at them by these opticians, and difficult cases could be sent at once to the ophthalmic surgeon. Mr. Hastings did not think that when the scheme was fully developed there would be room for the general practitioner who could not be a real expert in ophthalmic work. In reply to Mr. WILLINK, Mr. Hastings explained that in his parlance an optician was a man who made spectacles while an ophthalmic optician was a man who prescribed spectacles, could test errors of refraction, and could examine eyes to make sure there was no serious trouble with which he was not capable of dealing.

Mr. BEVAN said he found little to disagree with in these speeches. In the ideal system anyone having something wrong with his eyes should go first to the person who knew most about the subject. The eye specialist would not waste his time doing refraction work. Eye specialists had told him that the refractionist could do this work better than they could. He proposed to use the services of the qualified optician to the utmost extent. There was no antagonism between the spectacle-maker, the refractionist, and the specialist, but merely a proper division of functions. It would be disastrous to give an impression that the Ministry was not anxious to promote the status of eye-testing opticians. Representatives of the eye specialists and the eye-testing opticians would meet in the following week at his invitation to discuss the relative status of both sections. The results would be incorporated in the Bill. He contemplated a system where the eye specialist would be centred on the hospitals but would move freely between the health centres and the hospitals, discussing and generally supervising the work which the eye-testing optician was doing. By the time they had enough qualified eye specialists the relation between them and the eye-testing opticians would have been regularized. The independent optician was not excluded from the scheme. Mr. Linstead withdrew his amendment and Clause 41 was added to the Bill.

DISQUALIFICATION OF PRACTITIONERS

On Clause 42 Mr. PIRATIN moved an amendment to change the permissive part of the Clause into an obligation. The Clause as presented suggested that only in the case of representations from an executive council must the case be heard, and it was left to the option of the tribunal whether the case of any other person should be heard. He proposed to put down later a new clause introducing a local body to which people could go in the first place.

Mr. BEVAN said the new clause would be considered when Mr. Piratin moved it. The proposed amendment would clutter up the work of the tribunal with minor complaints which the local executive committee could consider. The Ministry did not want this tribunal to be a source of petty persecution of the profession. Minor allegations would be sifted first by the local executive. If there was found to be substance in them the executive council could take serious steps against the doctor concerned, and the tribunal itself would considered whether a doctor should be removed from that list or all lists, or what should be done with him.

Dr. CLITHEROW pointed out that Clause 42 referred to representations being made to the tribunal "by an executive council or any other person." He asked Mr. Bevan to say what was meant by those words. Mr. BEVAN replied that if a complainant felt his complaint had not been adequately dealt with by the executive council he could appeal to the tribunal, which might consider the matter. If the tribunal was satisfied that the complaint was trivial or that a sound judgment had been reached it would not make further inquiries. Mr. Piratin withdrew his amendment.

APPEAL TO THE HIGH COURT

Mr. HOPKIN MORRIS moved to leave out the subsection dealing with an appeal to the Minister from any direction of the tribunal and to substitute:

> Any person aggrieved by a direction of the tribunal either under the preceding subsection or under subsection (7) of this section may within three months after the date on which notice is given to him by the tribunal of their direction appeal against the direction in manner provided by rules of court to the High Court, and in any such appeal the High Court may give such directions in the matter as it thinks fit.

Dr. MORGAN hoped that Mr. Bevan would accept this amendment or look into the matter again. Until recently government departments, when they had not enough evidence to take a case to court, took it to a non-judicial body and threw on that body the onus of a decision which meant the ruin of a man's life—the decision of erasure and the possibility of not being able to practise.

Mr. BEVAN wished to prevent the Committee from being stampeded by emotions over a related subject which had nothing to do with what was before the Committee. The General Medical Council procedure might or not be altered, but that was not a matter for this Bill. The Committee was not discussing whether a man had been guilty of unprofessional conduct but whether a person who had contracted to carry out certain duties carried them out satisfactorily. He had thought first that in creating a service in which most of the doctors would participate there should be exceptional protection to the individual doctor against injustice. He had considered the existing machinery not adequate for that purpose though it worked to the satisfaction of the profession. Under that machinery the local committee considered complaints and appeals were made to the Minister. Doctors had not complained about this, but it had seemed to him that the Minister ought to put another body between himself and the local executive council. If the complaint were made against the doctor on a professional basis the G.M.C. would consider it as well as the Minister. The Minister would not consider the matter from the point of view of the doctor's position on the *Register*. A doctor might be continuously drunk and not attend to his work. That complaint was investigated in the first instance by a body on which the profession itself had half the representation. The other half of that body would be drawn partly from the Minister's nominees and partly from the local health authority. That executive council, after hearing the person concerned and what the doctors had said about that person, would say that they did not want him in that area. He could then appeal to the tribunal with evidence on oath, personal appearance, and all the panoply of judicial investigation. If the tribunal also said that the doctor ought to be removed from the list and he was still aggrieved he could come to the Minister. Reference to the Minister implied the right of the House of Commons to interrogate the Minister on how he was using his powers. The Minister would make an investigation, and if he decided that all the other bodies were right the man would be taken off the list. It was flat nonsense to assume that a judge of the High Court was a better person to decide whether a

:tor had carried out his job properly than the executive of profession, tribunal, or the lay Minister. Suppose a doctor e recommended by the local executive and the local tribunal to practise in that area, and the High Court then said he st have a job there, that doctor had to become a protégé the Ministry. If the procedure laid down by the Bill had t been carried out or if the various tribunals had exceeded eir powers, or if " the principles of justice had been offended " e appellant could still go to court. Doctors themselves ould be worse off, because if a doctor went to a court the ase would be publicized throughout the country, whereas under the procedure in the Bill it would only be necessary to move the doctor from a particular list. He could go elsewhere, be inscribed on another list, start afresh, and probably recover himself.

Sir H. MORRIS-JONES said the penalty provided by the Clause was almost as severe as that of the G.M.C. when dealing with professional misconduct. A medical man who was driven out of service under the Bill was virtually driven out of the profession. That was the main difference between the Bill and the existing national insurance scheme which dealt only with a third of the population. Mr. LINSTEAD said hitherto the main disciplinary tribunal for the doctors, dentists, and pharmacists had been their statutory body. Under the Bill the Minister, or the tribunal, would possess powers as substantial and as comprehensive as the powers of the statutory professional disciplinary bodies. It would be a matter of chance whether a drunken doctor was brought before the G.M.C. for removal from the *Medical Register* or found his way to the tribunal. If the complaint came through the professional tribunal it could ultimately reach the High Court. In any event dental and pharmaceutical cases went to the High Court. If there were two channels for discipline they should be brought to a head at one and the same point. That should be the High Court.

Mr. HASTINGS regretted that he must agree with the Minister. To determine whether an individual was fit to remain a member of the service could not be the function of the High Court. Those employed in this service would have under the Minister's proposals all they needed against injustice or victimization. Mr. REID said that Mr. Bevan's argument could only have validity if the Minister believed there would still be a large amount of private practice by which a man who retained his professional status but not his place on the list could earn his livelihood.

On a division the motion that the words which Mr. Hopkin Morris proposed to be left out should remain part of the Clause was defeated by 17 to 19. This was the first defeat of the Government during the Committee Stage of the Bill. A division immediately followed upon whether the words which Mr. Morris proposed to insert should be added to the Bill. This motion was defeated by 16 to 17. After an adjournment the chairman, Mr. BOWLES, suggested that nothing further should be done at that stage on Clause 42.

Mr. BEVAN saw no reason why the Committee should not go on with the Clause as it stood, and subsequently he could consider whether other steps should be taken at a later stage. The medical profession would not thank those who had defeated the Government for the extraordinary situation which resulted.

JUDICIAL INVESTIGATION

On the motion of Mr. KEY the Committee accepted an amendment to bring about reciprocity with Scotland on the disqualification of practitioners. This provided that where doctors were totally disqualified from inclusion in the list in Scotland they could be disqualified from the list in England, but if they were disqualified in only one or two places in Scotland they would not be disqualified from the list in England.

Mr. PIRATIN withdrew a further amendment on receiving an assurance that the person concerned would have a hearing before the tribunal. Mr. BEVAN said that if there were a hearing the person must attend.

On the motion that the Clause as amended stand part of the Bill, Mr. REID said that although Mr. Bevan had spoken of the full panoply of judicial investigation the right of a person to appear by solicitor or counsel before the tribunal was not covered, and he doubted whether the right of a tribunal to take evidence on oath was covered even by implication. Capt. BAIRD said the executive and the higher authorities could impose only one sentence. He hoped the Minister would consider giving them the right to admonish or to impose some minor punishment.

Mr. BEVAN said it was proposed to make provision by regulation for evidence to be taken on oath and for legal representation. It was also proposed by regulation to enable other forms of discipline to be imposed by the executive council and the tribunals in addition to that of removal from the list. Smaller penalties would be appropriate for minor offences.

The Clause as amended was ordered to stand part of the Bill. Clause 43 on the powers of the Minister where services are inadequate was also added to the Bill. Mr. BEVAN said that where the service had broken down the executive council would consult the representatives of the services before making any proposals. He did not wish to tie the executive council to formal discussions because urgent action might be necessary.

Clause 44, which concerns the recovery of charges in respect of certain appliances and dental treatment, was ordered to stand part of the Bill.

OTHER CLAUSES

Discussing Clause 45 on the exercise of choice of medical practitioner in certain cases, Mr. BEVAN explained that the Clause would apply when patients were themselves too ill to choose a doctor or in the case of children where the choice would be by the parents as legal guardians.

On Clause 46 the Committee negatived an amendment proposed by Mr. PIRATIN to the effect that charges for the use of health centres should not be paid by general practitioners. Mr. BEVAN said that when a doctor was taken away from his consulting room and was given one at the health centre he had not the same expenses to meet. It was therefore reasonable to expect him to make some small payment. He would be asked to pay not an economic rent but a reasonable rent. The rents charged would not be such as to discourage him from going there.

Mr. HASTINGS said a doctor coming into an area would have no surgery and would be prepared to pay something instead of starting a surgery for himself. On the other hand a doctor already in an area who proposed to carry on a certain proportion of private practice would need a surgery. Dr. STROSS said there would be great advantages to the doctor at the health centre, not only to himself but to his wife and family, because he might be able to live as a private person when not at work. A doctor's house was often on a dusty and noisy main road and was the last place where he would live if he could live somewhere else. Medical men had no incentive to go into a health centre and pay another rent while still compelled to live in the large house they already had. They were not allowed to sell that house to another medical man, having sold their goodwill to the Minister. If they sold it for any other purpose they were likely to lose a substantial amount of money. That point exercised the minds of family doctors all over the country. Mr. MCGHEE said the Minister ought to allow doctors to use the health centres freely but to make them provide their own staff.

Mr. BEVAN said he would be foolish to attempt a precise indication of what he thought health centres would be like. Doctors were allowed substantial expenses on account of having to provide facilities in their houses, and that expressed itself in the standard of remuneration. He thought that before long, if good health centres were provided, the doctor's wife would have something to say about it. He could not understand why a doctor's wife should continue to be tormented and have to be at the telephone day and night when her husband could get better facilities at a health centre. He believed that the financial inducements, together with the amount of wholesome nagging which would come in course of time, would enable the Ministry to get the doctors into the centres. At the same time the Committee must remember the patients. There had been a tendency to think that the Committee was providing a service for doctors, dentists, ophthalmic surgeons, and opticians, and to forget the patients. The doctors at the health centres would be able to arrange for emergency calls, but he agreed that continuity of treatment by the same doctor for the same patient was necessary. The Committee was not handing the patients over to a team of doctors at the health centres. The Ministry would have to feel its way for a considerable time in the organization of the health centre service. Clause 46 was ordered to stand part of the Bill, as was Clause 47 on the decision of disputes.

On Clause 48, which provides courses for dental and medical practitioners, Sir HAROLD WEBBE moved to bring in optical practitioners for these facilities, and Mr. LINSTEAD urged the inclusion of pharmacists. Mr. BEVAN said that if the language of the Bill did not give him power to provide such facilities then language would be used which would do so. Sir HENRY MORRIS-JONES said the facilities proposed extended what already existed under the National Insurance Act. The rural practitioners would welcome this extension, but he thought that Mr. Bevan had not made provision for locum tenents to be provided when doctors left their practices for refresher courses.

Mr. BEVAN said that when a doctor was taken from a rural area to attend a refresher course the executive council in that area would be under an obligation to provide a substitute. Sir H. Webbe withdrew his amendment. The Clause was added to the Bill and the Committee adjourned.

MENTAL HEALTH SERVICES

On June 27 Mr. KEY moved an amendment to Clause 49. In the provision transferring to the Minister the administrative functions relating to the reception of persons suffering from mental illness as private patients, he moved to leave out the words "as private patients." This was a necessary drafting amendment; it might be required that the Minister should arrange for treatment in a certified institution of a patient who would normally be treated in a hospital vested in the Minister. Such a patient would not be regarded as a private patient.

The Committee agreed to the amendment, and also to another proposed by Mr. KEY to ensure that both Sections 23 and 24 of the Mental Deficiency Act, 1913, providing for the appointment of officers by the Board of Control and for their disqualification, should cease to apply to any officers other than the secretary and inspector. Mr. Key moved further to add "commissioners" after "inspectors." He said Section 24 of the Mental Deficiency Act disqualified from office any commissioner, inspector, secretary, or officer of the Board who was directly or indirectly financially interested in certified institutions, houses, and private homes for mental defectives, and so on. The transfer to the Minister of the offices of the Board other than commissioners, inspectors, and secretary made it necessary to preserve this disqualification only in the case of commissioners, inspectors and secretary. The amendment was agreed to.

Mr. REID asked whether Mr. Key could indicate the appointed day when this Clause came into force. Mr. KEY said he could not; it would be a case of seeing how the administrative business arose. The Clause as amended was ordered to stand part of the Bill.

On Clause 50, repealing and amending the lunacy and mental treatments Acts and the mental deficiency Acts, Mr. KEY moved to insert words "enabling the Minister as a temporary measure to include in the designation of a mental hospital a small poor law institution in which only mental patients were accommodated or the separate wards of a poor law institution that were so used." The result would be that temporarily patients accommodated in such places would come under the care of the medical and nursing staff of the neighbouring mental hospital, and the hospital management committee responsible for their maintenance would be that of the mental hospital. The poor law authorities would cease to have any statutory responsibilities or duties towards these people. Mr. WILLINK remarked that this was the first reference in the Bill to a mental hospital. The Committee agreed to the amendment.

Mr. KEY moved to omit from subsection 4 of Clause 50 words restricting the transfer of a mental patient from a workhouse to a mental hospital or institution for defectives in the particular regional area. The convenience of patient and relatives should be considered so that he could be transferred to another institution even if it happened to be in another regional area but nearer his home. He assured Mr. REID that the power would not be abused to take people further away from their relatives merely for administrative convenience. The Committee agreed to the amendment and also to a proposal by Mr. KEY to omit subsection 5 of Clause 50, which permits the continued use as a special school of an institution for defectives. Mr. Key explained that a new Clause would be moved to replace this subsection. Clause 50 as amended was ordered to stand part of the Bill; also Clauses 51, 52, and 53.

EXPENDITURE BY REGIONAL HOSPITAL BOARDS

On Clause 54 Sir H. LUCAS-TOOTH asked the Government to state its intentions. Mr. WILLINK said it did not seem from what Mr. Bevan had said that there would be maximum initiative and personal life in the hospital management committees, and in the boards of governors of teaching hospitals. If these authorities feared that money not spent in one year might be taken from them in the next year, that would make for inefficiency.

Mr. KEY said the idea of the Ministry was that the hospital management committee would give the regional board for its area an estimate of its expected expenditure in the coming twelve months. That would be in some detail to give the regional board an idea of the character of the service to be carried out and the extent of the development proposed. The regional board would be able to negotiate with the hospital management committees and to suggest an extension here or a modification there for the time being. In the end the regional board would submit to the Minister an appreciation of the contemplated expenditure in its area during the next twelve months. That would be analysed, and would be subject to the Minister's approval. He must decide whether a region was carrying out its functions as it should, and whether it was exceeding what should be done at that particular time, if the service as a whole was to be adequately financed. The expenditure having been approved, the regional board would have its annual amount of money and would allocate to the hospital management committees their proportions of the regional sum. In the expenditure of that money regional boards and hospital management committees should have considerable latitude. If a deficit resulted from something unforeseen it would have to be made good in the budget arrangements of the following year. Any surplus must be carried through to the next budget period.

The Clause was ordered to stand part of the Bill, as was Clause 55, with drafting amendments.

RESPONSIBILITY OF THE MINISTER

On Clause 57 Mr. REID moved to omit the medical practices committee and the dental estimates board from the authorities in connexion with which the Minister is empowered to make an order declaring them to be in default, and directing them to discharge their functions as the order may specify. The medical practices committee had been represented as a body of some independence, appointed by the Minister but not the Minister's agents. The Minister would undermine their independent status if he took the drastic powers proposed. In the next amendment on the paper Mr. Bevan would propose with regard to these bodies and others that their members should forthwith vacate their office, and that the Minister would then carry on until someone else was appointed. He had made no provision for a public inquiry. The procedure was too summary and unlimited.

Mr. BEVAN said the Committee could not have two opposite principles, that was to say Parliament imposing the responsibility on the Minister to provide a service, and then creating an independent body in the service which could refuse to carry it out. These powers were necessary. In practice they would not be exercised summarily. If the Minister of Health set aside the medical practices committee without considerable discussion there would at once be a first-class debate in the House of Commons. Col. STODDART-SCOTT said that under the Clause as it stood if a teaching hospital failed to carry out one of the Minister's directions he could sweep away the privileges given to it without any inquiry whatever. The words proposed to be left out by Mr. Reid were ordered to stand part of the Bill by 27 to 13. Mr. KEY then moved the amendment previously mentioned by Mr. Reid to provide that except where the body in default is a local health authority its members shall forthwith vacate their office. After discussion the amendment was agreed to. Further amendments were made and the Clause as amended was ordered to stand part of the Bill. Discussion then followed on Clause 58, on the acquisition of land, which with an amendment was also approved.

GIFTS AND INTERIM DIFFICULTIES

Mr. WILLINK moved on Clause 59 to add hospital management committees to the bodies who are to have power to accept, hold, and administer property upon trust for purposes connected with hospital services. Mr. HASTINGS saw a danger in the amendment, and Dr. MORGAN hoped the Minister would not accept it.

Mr. BEVAN said it was intended that a proper proportion of the endowment fund should be allocated to the management committee. That committee was the body which would "warm up" the whole administration and maintain proper relationship between the hospital itself and the doctors and staff. But the Ministry wanted the system to be integrated. It seemed to him that it ought to be possible for the hospital management committee to take gifts because if not it was unlikely the gifts would go to the regional board. He agreed with the principle of the amendment and asked Mr. Willink to withdraw it on the understanding that on the Report stage it would be included. Mr. Willink withdrew the amendment.

Mr. LIPSON drew attention to the difficult financial position in which the hospitals would find themselves during the interim period. He urged the Minister to explain in a public appeal that under the State service the hospitals would still be the hospitals of the people, and that it was necessary to maintain them; and that there would be opportunities for the public to add to what the State was doing. He asked Mr. Bevan to make clear that he was taking over the endowments only once, and that future gifts would be allowed to be retained.

Mr. BEVAN said the financial difficulties into which the hospitals were getting were not a result of the Government proposals. He admitted that knowledge that future provision for voluntary hospitals would be made by the State must freeze the flow of charitable endowments, but he hoped it would not have that effect too much in the next eighteen months. He appealed to people to support the hospitals in the intervening period. He could not give a guarantee that hospitals would be allowed in the future to keep all the money that went into

them, because no Parliament could bind another Parliament. It would take some time to disentangle the subterranean assets which the hospitals concealed all the while. The hospitals had run persistent overdrafts and detained considerable assets at the same time, the overdrafts being the vacuum into which they hoped to suck charitable endowments.

The Clause was ordered to stand part of the Bill, as was Clause 60 on the power of trustees to make payments to regional hospital boards and boards of governors.

QUALIFICATIONS AND REMUNERATION

On Clause 62 Mr. REID proposed to delete the provision that regulations may be made with respect to the qualifications of any officers employed by any body constituted under the Bill or employed by a local health authority or a voluntary organization mentioned in the Bill. He doubted whether the Minister appreciated that under the Clause he could make regulations with respect to the qualifications of doctors.

Mr. BEVAN said no Minister would try to meddle with the qualifications of doctors. Mr. SOMERVILLE HASTINGS said that for some doctors qualifications were required. Many local authorities thought it essential that medical officers of health should have the D.P.H.

Sir HENRY MORRIS-JONES said the only qualification which should be recognized was that a man was a fully qualified and registered medical practitioner. Mr. BEVAN said that nobody was interfering with that, and the amendment was negatived. Clause 62 was added to the Bill.

On Clause 63 Mr. COLLINS raised the position of certain mental hospital workers who were dealt with by the Asylum Officers Superannuation Act, 1909, which enabled them to retire at the age of 55. Mr. BEVAN said that where these people had a superior entitlement provision would be made to preserve it.

Mr. WILLINK moved an amendment on Clause 64 to provide for compensation for officers who had worked under contributory schemes linked with a group of hospitals. Mr. BEVAN resisted the amendment but guaranteed that the Minister of National Insurance and he would do their utmost to absorb these people into the new service. The proposed amendment was rejected by 12 to 19.

Further amendments were made on the motion of Mr. KEY, and the Clause as amended was ordered to stand part of the Bill. So were Clause 65 with amendments, Clause 66, and Clause 67, the latter with an amendment to ensure that the relevant section of the Public Health Act, 1875, was properly applied.

On Clause 68 the Committee accepted an amendment by Mr. KEY, and the Clause so amended was ordered to stand part of the Bill.

Specialists due for Release

Mr. BOWDEN inquired on June 27 whether Mr. Bevan knew that, through the failure of the Central Medical War Committee to call up specialist medical officers at a rate quick enough to replace those specialist medical officers in the Services who were due for release, it had been necessary to retard the release of these medical officers. He asked the Minister to speed the call-up of those specialists who were eligible for service, in order that serving medical officers could be released.

Mr. BEVAN said he was aware of the difficulty. His department was in close touch with the Central Medical War Committee, who, he was satisfied, were making every effort to find replacements for specialists due for release.

Tuberculosis Service

Sir THOMAS MOORE asked on June 27 for a statement on the future of the tuberculosis service; and how far the policy of the Minister of Health was in accord with the policy of the Joint Tuberculosis Council.

Mr. BEVAN said the new service would provide all facilities for handling tuberculosis, mainly through the new hospital and specialist services backed by all the supplementary domiciliary services of the local authorities. He added that he could not commit the Joint Tuberculosis Council.

Mr. SPARKES reported on June 27 that there were 600 cases waiting for admission to Middlesex County Council tuberculosis hospitals; that 200 beds were closed through shortage of staff, due in some measure to lack of suitable accommodation for them. He asked why Mr. Bevan declined to approve plans for new nurses' homes and extensions to the Harefield Hospital.

Mr. BEVAN said he knew of the shortage of beds for tuberculous patients in Middlesex, and of the difficulties raised by inadequate staff accommodation, but must have regard also to other pressing claims on building labour and materials. He was reviewing the case to see whether a part of the proposed building might proceed.

Medical News

Dr. Thomas Clarence Routley, General Secretary of the Canadian Medical Association, was appointed C.B.E. (Civil Division) in the Canadian Dominion Day Honours List published on July 1.

A meeting of the Pathological Society of Great Britain and Ireland is being held at the University of Aberdeen on Friday and Saturday, July 5 and 6.

Sir Francis Fraser, M.D., will deliver the Frederick Price Lecture in the hall of the Royal College of Physicians of Edinburgh on Friday, July 12 at 5 p.m. His subject is "Postgraduate Education and the National Health Service."

The Harben Lectures for 1946 will be given on Monday, Tuesday, and Wednesday, July 15, 16, and 17, at the Royal Institute of Public Health and Hygiene, 28, Portland Place, W.1, by Dr. William H. Feldman, of the Mayo Foundation, University of Minnesota. The general subject of the lectures is the chemotherapy of tuberculosis, including the use of streptomycin. The first lecture will be on the basic considerations of chemotherapy in tuberculosis; the second, an evaluation of the efficiency in tuberculosis of sulphonamides, sulphones, and certain other substances; and the third, on the effect on tuberculosis of antagonistic substances of microbial origin, with particular reference to streptomycin. Admission is free without ticket, and each lecture will begin at 3 p.m.

The Nutrition Society, with the help of the British Council, has organized an informal post-war conference of European Nutritionists, to be held in Great Britain between July 4 and 20, to enable research workers in ex-occupied territories to re-establish contacts with their colleagues in this country. The following open meetings, all of which will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., are included in the programme: Friday, July 5, 2.30 p.m.; Saturday, July 6, 10.30 a.m. and 2.30 p.m.; Monday, July 8, 10.30 a.m. and 2.30 p.m. These open meetings will be devoted mainly to papers by visiting scientists, describing nutritional conditions and investigations in their own countries during the war. All members of the Nutrition Society are invited to attend.

The annual meeting of the Medical Insurance Agency was held at B.M.A. House on June 14, with Sir Robert Hutchison in the chair. Sir Hugh Lett and Dr. L. G. Glover intimated their desire not to be re-elected to the Committee of Management; and the committee accepted these decisions with regret and with an expression of thanks for their past services. Sir Henry Tidy, Mr. A. M. A. Moore, F.R.C.S., and Mr. Ronald Raven, F.R.C.S., were elected to the committee; Lord Horder, Dr. Alfred Cox, Dr. J. A. Brown, Dr. James Fenton, and Dr. R. W. Craig were re-elected. Allocations to the Royal Medical Benevolent Fund and to the Royal Medical Foundation of Epsom College totalling about £5,600 were approved from the disposable surplus on last year's working. Sir Francis Fraser was appointed to the Conjoint Committee of Epsom College to represent the Agency should an invitation to do so be received. The proceedings ended with a vote of thanks to the chairman and to the honorary secretary, Dr. Henry Robinson, for their work during the past year.

A delegation of six scientists and educationists from the Netherlands is visiting this country for three weeks under the auspices of the British Council to make contact with British colleagues in London, Oxford, and Cambridge.

Films of microbiology and protistology made under the direction of Dr. Comandon by the Département de Cinémicrographie, Institut Pasteur, Garches, S. et O., have been brought to this country by M. Pierre de Fonbrune. They include those reviewed recently in the *British Medical Bulletin* (1946, **4**, 72); and also films on *Amoeba verrucosa*, Karyokinesis, and *Lankesterella*. They are silent films on 35 mm. stock with captions in French. A selection of these films will be shown in London by the British Council at 5 p.m., on Monday, July 15. A limited number of seats are available and will be allotted in rotation on application to the British Council, 3, Hanover Street, London, W.1. Telephone: Mayfair 8484, extension 134.

At the Annual Meeting of Fellows of the Royal Society of Medicine on July 2, Group Capt. Antoni Fiumel, late D.G.M.S. to the Polish Forces, and Col. C. F. Koch, late D.G.M.S. to the Netherlands Forces, were admitted as honorary Fellows. Both Group Capt. Fiumel and Col. Koch escaped from their countries to Great Britain in the early part of the war. The other honorary Fellows elected are: Col. L. C. Montgomery, R.C.A.M.C., Sir Alan Newton, F.R.A.C.S., F.R.C.S., and Col. W. S. Middleton, U.S.A.M.C. Diplomas of Fellowship are being presented to Col. Montgomery and Col. Middleton by the President of the R.S.M., Sir Gordon Gordon-Taylor, at present on tour in the United States and Canada. Sir Maurice Cassidy has been elected president of the Society for the session 1946–7.

No. 24

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 15.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946 (a)	(b)	(c)	(d)	(e)	1945 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	44	4	17	3	1	47	6	29	2	2
Deaths		4	1				1	—		
Diphtheria	262	18	99	25	13	438	25	113	69	17
Deaths	1	—	1	—	—	5	—	2	—	—
Dysentery	146	20	48	—	—	464	49	77	2	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	1	—	—	—	—	—	—	—	—
Deaths		—					1			
Erysipelas			34	13	2			47	11	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				24					34	
Deaths	41	6	9	3	5	45	4	8	6	3
Measles*	4,415	1081	660	36	23	7,890	412	351	70	9
Deaths	4	2	1	—	—	4	—	1	—	—
Ophthalmia neonatorum	63	7	14	—	—	57	6	27	—	—
Deaths										
Paratyphoid fever	4	—	1 (B)	—	—	1	—	1 (B)	—	—
			1 (A)							
Deaths	—	—	—	—	—	—	—	1	—	—
Pneumonia, influenzal	505	27	9	—	2	389	20	16	1	4
Deaths (from influenza)†	11	4	—	—	—	14	2	—	—	2
Pneumonia, primary			141	10				194	18	
Deaths		28		11	8		23		8	9
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	12	—	1	3	1	6	—	2	1	2
Deaths		—					—			
Puerperal fever		1	17		—		1	15		1
Deaths										
Puerperal pyrexia‡	134	5	14	3	2	129	8	17	4	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	866	85	187	24	20	1,314	65	201	18	44
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	2	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	7	—	1	7	3	5	—	2	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	1	1	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,625	150	86	28	27	1,130	48	97	54	8
Deaths	8	2	—	1	1	4	1	2	1	1
Deaths (0–1 year)	337	50	54	22	22	305	34	55	19	22
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,189	647	557	193	129	3,901	573	548	189	117
Annual death rate (per 1,000 persons living)			12·3	12·4				12·4	12·2	
Live births	8,778	1371	1123	338	280	6,895	811	928	410	257
Annual rate per 1,000 persons living			22·6	21·7				18·6	26·5	
Stillbirths	230	32	33			238	30	42		
Rate per 1,000 total births (including stillborn)			29					43		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* 519 more cases of measles were notified than in the preceding week. The incidence of other infectious diseases declined, the chief falls being whooping-cough 124, scarlet fever 121, and diphtheria 42.

The decline in whooping-cough was most notable in Staffordshire 63 and Lancashire 57. In the south the incidence increased, and the combined counties of the south-east and south-west regions had a rise of 75 cases.

The only local variation of any size in the returns for scarlet fever was a decrease of 42 in Yorkshire West Riding.

London and the four surrounding counties had almost two-thirds of the total cases of measles. The largest rises were Middlesex 193, Surrey 90, Kent 70, Essex 64, Lancashire 56, Southampton 51; an exception to the general rise was a decrease of 54 in Yorkshire West Riding. Only 262 cases of diphtheria were notified. During the preceding five years 1941–5 the lowest weekly total recorded in each year was 674, 572, 493, 398, and 346. The largest falls in diphtheria during the week were Lancashire 21 and Durham 11.

The largest returns for dysentery were Lancashire 46, London 20, Kent 14.

In *Scotland* an increased incidence was recorded for scarlet fever 23, diphtheria 14, and dysentery 12. The rise in diphtheria was due to scattered cases. The increase in dysentery was contributed by Glasgow, where the cases rose from 4 to 23.

In *Eire* the only variations in the trends of infectious diseases were decreases—measles 12 and whooping-cough 17. Of the 28 cases of whooping-cough 26 were notified in Dublin C.B.

In *Northern Ireland* whooping-cough declined by 17; all the cases were notified in Belfast C.B.

Week Ending June 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 941, whooping-cough 2,026, diphtheria 274, measles 4,516, acute pneumonia 496, cerebrospinal fever 51, dysentery 93, acute poliomyelitis 13, paratyphoid 1, typhoid 4

Letters, Notes, and Answers

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ANY QUESTIONS?

Bone and Joint Tuberculosis in Children

Q.—*What are the advantages of the Swiss treatment of bone and joint tuberculosis in children? Is the treatment itself more or less standardized in England and in Switzerland, and does the only difference lie in the climate?*

A.—The principles governing the treatment of bone and joint tuberculosis are the same whatever the joint involved and are largely independent of the age of the patient. They are as follows: (1) general treatment, fresh air, sunshine, good food, rest, and congenial occupation; (2) strict immobilization of the affected part, which may have to be continued for a long period after the disease has become quiescent, more especially if the affected part is weight-bearing; (3) as a terminal procedure, when the local lesion is no longer active, arthrodesis is often of value in converting an unsound fibrous into a sound bony ankylosis, thus rendering external splinting unnecessary; (4) it is occasionally possible to excise a localized bone lesion, but even in such a case general treatment is still necessary since the patient, and not merely the affected limb, is tuberculous.

The writer is not sufficiently familiar with the practice of all the main centres in Switzerland to say dogmatically whether

or not methods of treatment in that country are standardized. In England there is fairly general agreement about the principles of treatment, though there are differences of emphasis and in details of technique as between one centre and another. This is only to be expected, since our understanding of the vagaries of this serious disease is still incomplete; standardization in the absence of full knowledge would indicate stagnation. It is not unreasonable to suppose that Swiss surgeons, whose competence is generally acknowledged, are no more slaves to uniformity than we are. The writer's impression is that British surgeons, on the whole, are more strict in their methods of immobilization, and more in favour of terminal arthrodesis. There is an undoubted difference in the climate, and it is popularly supposed that the alpine sun is endowed with magical powers of healing. It certainly is not in other parts of the world where people see more of the sun than we do. All forms of tuberculosis occur with some frequency in the Kenya highlands, in South Africa, in Australia, and in the Mediterranean countries. Gauvain and Girdlestone, among others, believe, probably rightly, that variability in climate is more stimulating and beneficial to the patient than steady solar irradiation—in which case nothing could be better than the English climate, the only constant feature of which is its irregularity.

Patients with bone and joint tuberculosis recover well in hospitals in Switzerland and in the British Isles; some die in Switzerland, some die here. Reliable comparative figures are unobtainable. What is disturbing is that patients who appear to have made a good recovery in Switzerland sometimes relapse very rapidly after returning to England. The writer is not alone in believing that the best course is to treat the patient in the climate in which he will have to live subsequently, and if one of his own children had the misfortune to develop bone tuberculosis he would insist on the treatment being carried out in England.

Protein Hydrolysates

Q.—*Is protein hydrolysate useful in the treatment of selected cases of duodenal ulcer?*

A.—Although certain workers in the United States have shown enthusiasm for the treatment of duodenal ulcer with protein hydrolysates there is no clear indication for such a line of treatment, for the digestive and absorptive power of the gut is not seriously impaired. The clearest indication for the use of protein hydrolysates is in those relatively few conditions where the power to ingest, digest, or absorb protein is so adversely affected as to constitute a serious danger to convalescence.

Hyperhidrosis and Bromidrosis

Q.—*What are the causes of bromidrosis as distinct from hyperhidrosis?*

A.—Hyperhidrosis indicates an increased secretion of sweat, either general or local. Local forms express a state of physiological instability, often of emotional origin, and affect axillae, palms, and soles, but may be more widespread. Generalized hyperhidrosis is more usually the result of fever or general ill-health or of climatic and environmental conditions.

Bromidrosis may or may not be associated with hyperhidrosis and is of two main types. The first is the consequence of a macerated hyperkeratosis, which may accompany hyperhidrosis of the hands and feet, and some degree of bacterial infection of this macerated tissue. The most effective treatment is by small doses of luminal internally and the use of sodium hexametaphosphate locally, as a foot-powder or as a foot-bath in a strength of 10% or so. Bromidrosis may be a natural occurrence in women, particularly affecting the axillae, pubic, abdominal, and breast regions, and is connected with the activity of the apocrine glands in these sites. These are large sweat glands opening into the pilo-sebaceous follicles and related to the odoriferous glands of animals. Bromidrosis is sometimes checked by the administration of oestrogens.

Essential Hypertension

Q.—*A very plethoric woman aged 48 had a sudden hemiplegia eighteen months ago. She has completely recovered from the paralysis and now has attacks of giddiness with blurring of vision lasting several hours. The blood pressure is 230/180 mm. Hg. The urine contains no albumin. There is slight improvement with phenobarbitone and theobromine. Is venesection contraindicated in view of the past history of hemiplegia? Would the administration of thiocyanate be of any use? If not, apart from "taking it easy," is there any other treatment?*

A.—One of the chief prognostic features in such a case would be the condition of the fundus oculi and the presence or absence of retinal haemorrhages (which are of very grave significance). Renal function tests are also advisable in a case like this, and if the results are not grossly abnormal the question of abdominal sympathectomy will arise for serious consideration. The decision is one which calls for the most deliberate consultation by physicians and surgeons with experience of this measure. Of medicinal remedies, thiocyanate is certainly worth a trial as being one of the few drugs which will reduce a raised blood pressure. It is a remedy to be used with caution, however, and over a short period only, as toxic symptoms are by no means uncommon. Venesection has but a transitory effect upon the blood pressure, and, in the absence of any clinical symptoms suggesting acute cerebral oedema, seems scarcely to be indicated.

Counting Spermatozoa

Q.—*How does one count spermatozoa? What are the upper and lower limits of a normal count?*

A.—It is usual to employ the Neubaur counting chamber and white blood cell pipette. Various diluted fluids are used, some containing stain, others not. Mix the semen well and fill to the 0.5 mark half-way up the pipette. Then fill the entire chamber with a solution of 5% sodium bicarbonate and 1% phenol (the phenol ensures absence of motility of the spermatozoa). This gives a dilution of 1 in 20. If the spermatozoa are few in number the dilution can be modified to 1 in 10. Having discarded the fluid from the stem of the pipette, transfer some from the bulb to the counting chamber and count the sperms in 1 sq. mm. Multiply by 10, to find the number in 1 cu. mm., and then by the diluting factor (20). Multiply finally by 1,000 to find density per ml. Some workers prefer not to use the pipette because of the difficulty of getting the semen evenly mixed. An alternative technique, using this time a diluting fluid which also stains, is as follows. Dilute the semen in bulk with an equal quantity of saline and mix well. Take 0.2 ml. of this and mix with 0.2 ml. of Lempert Kristenson's platelet solution (sod. cit. 1 g., mercuric chloride 0.002 g., brilliant cresyl blue 0.2 g., water 100 ml.). The mercuric chloride kills spermatozoa. Add 1.6 ml. of saline and mix well to obtain a dilution of 1 in 20. Fill the counting chamber and count as before.

A repeat count is desirable in each case, and more than one specimen of semen should be tested to exclude spontaneous variations. Caution is required in the interpretation of the result, and fertility cannot be assessed by sperm density only. The volume of seminal fluid, the survival capacity of spermatozoa, and their morphology, all have to be taken into consideration. Other things being equal, it is generally reckoned that good fertility is associated with a count of 100 millions per ml. and over, but any count over 60 millions is regarded as being within average limits. The tendency nowadays is to lower the standard and not to regard as indicative of significant impairment of fertility any count above 30 millions per ml. If the count is below 10 millions then fertility is extremely low, but it should be remembered that many men with counts of two millions per ml., and even less, have proved capable of producing children. For further details reference should be made to books such as *Fertility in Men*, by R. S. Hotchkiss, 1945, Wm. Heinemann Medical Books, Ltd.

Indecent Assault

Q.—*What exactly is the indecent assault which one reads of so often in the newspapers but which is not mentioned in books on medical jurisprudence?*

A.—Assaults of a sexual nature not amounting to rape or attempted rape are considered to be indecent assaults. Indecent assault is an indictable misdemeanour, and is referred to, but not defined, in the Offences against the Person Act, 1861, and the Criminal Law Amendment Acts of 1885 and 1922. These references, with one exception, are concerned with offences

against women or girls, and a charge of indecent assault is, of course, usually made in such a connexion. But it would appear that a similar charge can arise from an offence against a man or boy, for Section 62 of the Offences against the Person Act states that "whosoever . . . shall be guilty of any indecent assault upon a male person shall be guilty of a misdemeanour. . . ." In Scotland such cases would be dealt with under the common law as an aggravated form of assault, the aggravation being determined by an intent to gratify lewdness. Such intent might be present in an assault either on a female or on a male.

Penicillin Prophylaxis of Streptococcal Sore Throat

Q.—*Are penicillin lozenges of any value in the prophylactic treatment of healthy children and adults who have recently been in contact with cases of* (1) *scarlet fever,* (2) *acute streptococcal tonsillitis?*

A.—Although penicillin lozenges have been used with some success in the treatment of streptococcal tonsillitis, there are as yet no data on their value in the prophylaxis of sore throat and scarlet fever. One disadvantage of sucking antiseptic lozenges is that, contrary to expectation, the antiseptic is not concentrated on the tonsillar surface or on the pharyngeal wall. Experiments with tablets containing methylene blue have shown that the backward currents in the mouth carry the material along channels which largely avoid these surfaces. Partly for this reason and partly because the infecting organism gets into the tonsillar crypts, treatment of streptococcal throat infections with penicillin has lately been by systemic use of the drug. However, it may be possible by sucking lozenges to maintain a sufficient concentration of penicillin in the throat and nasopharynx to prevent invasion of the tissues by the haemolytic streptococcus, and controlled trials to this end will no doubt be carried out. There is probably less risk with penicillin of breeding drug-resistant streptococci than is the case with the suphonamides. Penicillin-resistance cannot be induced very readily by test-tube experiments and organisms that have been rendered penicillin-resistant readily revert to the sensitive state when cultured in the absence of penicillin.

Dhobi's Itch

Q.—*What is the best treatment for dhobi's itch?*

A.—There is no routine treatment for dhobi's itch, as each case must be judged on its own merits, but if one remedy were to be selected in preference to others the choice would fall on Whitfield's ointment. The condition should not be overtreated, as is sometimes done, when the remedy is blamed for unsatisfactory results which are due not so much to the remedy as to its over-enthusiastic application. It may also be mentioned that the condition is sometimes diagnosed on rather slender clinical evidence, without microscopical confirmation, and in such cases the necessarily strong fungicides prove merely irritants.

Treatment of Chronic Rhinitis

Q.—*A schoolmistress suffers from chronic catarrh which she attributes to long hours spent in a chalk-dust atmosphere. What is the treatment?*

A.—The nasal discharge should be examined for pus cells and eosinophil cells, if necessary on several occasions. Pus cells indicate infection and eosinophil cells an allergic reaction. If pus cells and bacteria predominate involvement of one or more sinuses is likely and the appropriate investigation and treatment is required. If eosinophils predominate the catarrh is allergic in origin. Intradermal skin tests should be done and the results correlated with the history.

The commonest inhalants to cause allergic rhinitis are orris root (in face powder), house-dust, feathers, and various animal danders, while the commonest foods are wheat, egg, milk, potato, and chocolate. Chalk is not usually considered as an allergen, but as a non-specific or secondary irritant. The use of a damp duster to reduce chalk-dust at school is advisable. Foods, and where possible inhalants, suspected of causing symptoms should be completely eliminated for six weeks and the effect observed. House-dust sensitive cases are likely to benefit from "desensitization" (orris-root-free face powder, skin tests, and desensitizing solutions can be obtained from C. L. Rencard's, Ltd.). Ephedrine gives symptomatic relief. The possibility of a psychological trigger should be fully realized and a hormonal imbalance is sometimes responsible. Stilboestrol and thyroid extract have in some cases been of benefit. When such measures fail, local treatment, such as cauterization or ionization, should be carried out, especially when there is no superadded infection.

Solders' Dermatitis

Q.—*I am M.O. to a small factory with employees engaged in soft-soldering work. How can I prevent solders' dermatitis caused by "splashing" with Baker's solution?*

A.—Baker's solution is acidic zinc chloride, and zinc chloride is the most irritating of zinc salts. Soluble salts of zinc precipitate albumin in the tissues and have a caustic action in strong solution, and an astringent one in dilute solution. Zinc chloride is hygroscopic and therefore extracts water from organic tissues to such an extent as to produce ulcers of the skin and of the nasal septum. Cleanliness is the best method of preventing skin lesions. Washing facilities need to be provided and the workers encouraged to use them. Provision of barrier creams will give some protection against Baker's solution—these are fully discussed by Thelwall Jones, *Brit. J. industr. Med.*, 1946, **3**, 83.

INCOME TAX

Employment: Purchase of Equipment

S. R. is a teacher of a surgical specialty. If he buys a clinical camera to assist him in this work can he claim a depreciation allowance?

∴ It is assumed that S. R.'s income from this work is received in the form of payment for employment and accordingly is assessable under Schedule E. In that case he can make the claim only if he can show that the camera is "necessary" for his work. As it is normally assumed that an employing authority will find all "necessary" apparatus S. R. may find the production of the required evidence impracticable.

Car Transactions

J. H. bought a car for £140 in 1939 and sold it for £275 in November, 1945, buying a second-hand car for £350. Depreciation was allowed on the old car. Can he claim any extra allowance for 1945–6?

∴ In strict law such a claim can be made, because the rule that the depreciation allowance should be calculated according to the value of the car as at the date of the end of the account *preceding* the year of assessment did not come into operation for 1945–6. But if—as is presumably the case—J. H.'s depreciation allowances have hitherto been calculated on the usual "preceding" basis, a charge for 1945–6 might entail a revision of the allowances for previous years. The claim may not be worth while. As the car was sold before April 6, 1946, no "balancing charge" can be assessed on the "capital" profit made by the sale of the old car. For 1946–7 an initial allowance of 20% of £350=£70, and a depreciation allowance of 25% of £350=£87 10s. (i.e., £157 10s. in all) can be claimed in respect of the car bought in 1945.

LETTERS, NOTES, ETC.

Herpes Zoster and Varicella

Dr. JAMES KAY (St. Helens) writes: A man, aged 42, began to have severe pain over the distribution of the second thoracic segment on the right side. Five days later the typical vesicles of herpes zoster appeared and two days after this a generalized chickenpox eruption was seen. The vesicles of the herpes were about half-an-inch (1.2 cm.) in diameter, very profuse, and associated with very severe pain. On the day the chickenpox eruption appeared 4 ml. of a liver extract was injected intramuscularly, and the effect on the herpes zoster was dramatic. The pain disappeared within twenty-four hours and the vesicles began to dry up. No fresh chickenpox spots appeared. The effect upon the herpes zoster, in view of the recent note in this *Journal* (June 15, p. 942), seems definite. The chickenpox eruption may have been mild without treatment, but it would be of interest to try the effect of similar therapy on a series of early cases of chickenpox. No rationale is offered for this line of treatment.

Penicillin Therapy Booklet

Messrs. Boots have issued a booklet entitled "Penicillin Therapy" which is intended to give practising physicians information on the principal uses of penicillin, dosage, and methods of administration. Copies may be had from the Medical Department, Boots Pure Drug Co. Ltd., Station Street, Nottingham.